

JUL 13 1927

AUTOMOTIVE INDUSTRIES

Volume 57
Number 2

PUBLISHED WEEKLY AT CHESTNUT AND 56TH STREETS
PHILADELPHIA, JULY 9, 1927

35c a copy
\$3.00 a year

Engineering
Library

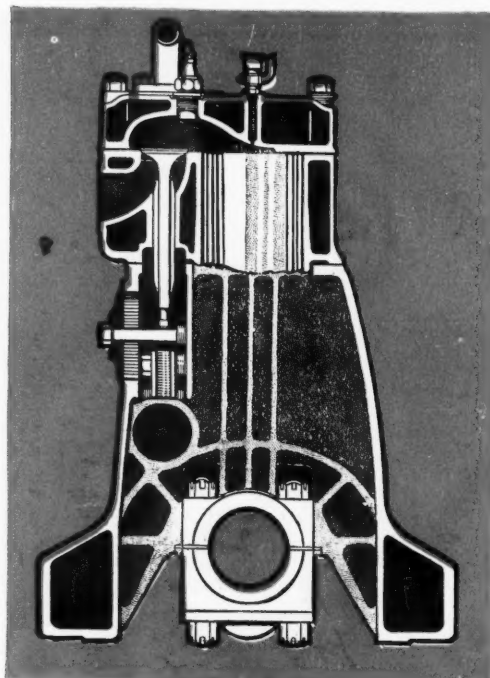
for Super-Production

*There is only
ONE ANSWER!*



NEW BRITAIN NEW-MATIC

Waukesha Heavy Duty Six Cylinder Construction



a-723-MC

Engines Designed to Stand Up

There is no compromise position. An engine either drives a bus 300,000 miles without trouble or it does not. Often engines are purposely under-powered so that they will stand up but they lack acceleration, speed and fuel economy. No such compromises enter the design of Waukesha "Ricardo" Head six cylinder Bus and Truck engines. Equipped with a "Ricardo" head they give—"valve in the head" power without sacrificing their "Ell" head simplicity—almost touring car mileage with a bus—"pingless" performance.

No ordinary engine design can utilize the advantages of "Ricardo" combustion to the fullest. Much more rigid construction is required—an oversize crankshaft and an extra rigid crankcase. Beside the 3½ inch crankshaft Waukesha Six Cylinder Bus engines have a "Girder" type crankcase—arch ribbed as shown above—reinforced torsionally by tubular longitudinal members on each side and a long vertical slab behind the valve tappets that helps tie the four cross walls together. Such rigidity eliminates objectional vibrations and makes dampeners and auxiliary flywheels unnecessary. Write for Bulletin No. 592 describing this engine more fully.

A-723-LC)

AUTOMOTIVE EQUIPMENT DIVISION

WAUKESHA
Waukesha

Eastern Sales Offices

MOTOR

COMPANY

Wisconsin

Eight W. 40th Street

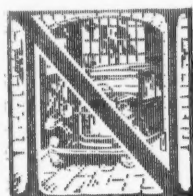
New York City

Exclusive Builders of Heavy Duty Automotive Type Engines for Over Twenty Years

Industry Enters Second Half of 1927 with Business Tone Firm

Tendencies developed in first half year seem likely to continue during coming six months. Domestic sales probably not as large as last year, but exports going up.

By Norman G. Shidle



OT for a good many years has the industry passed the mid-year mark with as few misgivings about the last six months or as few signs pointing to any definite change from the conditions under which it operated during the first half of the year.

If the general signs of business astrology may be expected to have their usual meanings, the last half of 1927 will bring about little radical change in automotive business from the course already followed since the first of the year.

That means that total production for the last six months is likely to be something less than total production for the same period last year; that plenty of automobiles will be sold at a profit but that sales will be a bit smaller than during the first six months which included the usual spring selling season, the high selling point of the year under normal conditions.

All through the retail and wholesale trade a pretty fair degree of optimism about the last six months exists today; a marked contrast to the fearful and awed attitude with which a lot of automotive men looked forward to the last half of 1926. There are those in positions with excellent opportunities for observation who profess even to see better business for the automotive trade during the next six months than during the last; both production and sales, they think, may be higher.

Floods in some sections, retarded crops in others, unusually adverse weather conditions in still others and the imminence of the new Ford model, they argue, have held back total sales volume quite considerably in the last three or four months. Announcement of the new Ford—expected now almost any time—and improvement already noticeable in the other three conditions, they believe, together with the stimulation likely to arise from the bringing out of new models by a number of companies, may result in both sales and production during the last half of the year exceeding those of the first half.

While this group may turn out to be the most accurate business seers after all, the general feeling is that the period from July to December will see lower rather than slightly higher totals than the period from January through June.

Predicting with anything like quantitative accuracy the probable output of motor vehicles in the coming six months offers difficulties far beyond the powers of the writer. Study of the performance of the industry during the first six months, however, as well as of its activities during the year 1926 offer some fair indications of likely trends.

In the first half of 1926 the industry produced a total of 2,430,755 cars and trucks. Its total for the first half of this year—with June figures estimated—was 2,135,600, a decrease of a little over 12 per cent as compared with 1926. The major declines, as is generally recognized, came in the passenger car totals, due chiefly to the severe falling off in Ford sales, but also to drops in the totals of a number of other companies as well.

Passenger car output for the first half of 1927 was about 1,867,914, a drop of 305,211 or about 14 per cent as compared with the 1926 figure of 2,173,125.

Motor truck production during the same period showed a gain of nearly 4 per cent as compared with the first half of 1926. The truck figures show an output of 257,630 for the first half of 1926 as against about 267,686 in the first half of this year.

Will the last half of this year bear about the same relation to the first half as did the last half of 1926 to the first half of 1926? That is the question which a good many executives are asking themselves at this time as they look back over these production statistics. The fact that this year seems to be a normal one in many respects and that there has been little radical change in general business conditions since last year lends some strength to the theory that a general similarity may eventuate. From a total production standpoint, of course, the Ford situation is an important factor to be reckoned with. Ford's proportion of

the total output of the industry has been declining rather steadily since July 1 of last year. During the last half of this year it seems almost certain that his proportion of total output will go up again from the low point reached in recent weeks. Just how far up toward its peak of several years ago it will go remains to be seen. The introduction of Ford's new model will add to the total production and sales figures for the industry, however, is hardly to be questioned. All of Ford's losses have not been made up in gains of other companies.

Last year 55.4 per cent of the passenger cars produced during the year were accounted for in the first six months. Should that same relation hold true again this year, the output in the next six months would be around 1,511,000. That would give a total 1927 passenger car production of nearly 3,380,000 as compared with 3,929,546 last year, making 1927 run behind 1926 by about 14 per cent.

Total Production Estimates

Should the last half turn out more favorably in relation to the first half, however, and equal the first six months in output, the 1927 total for cars would reach 3,735,000, or only about 5 per cent less than 1926. Probably the final count will show something between these two, depending largely on the results of the new Ford. In analyzing this situation it is worth bearing in mind that Ford was responsible for something less than 21 per cent of the total output of cars during the first half of 1927, while he built something over 35 per cent during the first half of 1926.

More and more, specific consideration of the export market becomes necessary in trying to figure out the future course of automotive business. Exports in the truck field, for instance, are entirely responsible for 1927 output thus far having been in excess of 1926 production for the same period. While truck output went up nearly 4 per cent the first six months of this year as compared to the same period in 1926, the production of trucks for domestic consumption was about 315 per cent less than last year.

Something of the same condition exists in the passenger car field although the increased exports do not constitute a sufficient proportion of the total to have turned a loss into a gain. While total passenger car output has declined only about 14 per cent, passenger car production for domestic consumption ran nearly 16 per cent behind that of the first half of 1926.

"The theory that automotive business for the remaining months of 1927 will show a continuance of many of the tendencies begun during the first half seems to be borne out by study of general business conditions upon which, of course, automotive progress rests fundamentally. Sales during the first half of the year were uneven, both as to individual companies and as to sections of the country. Generally speaking they were somewhat behind 1926, but nothing in the nature of a slump was registered. General commodity prices continued to fall and automobile prices evidenced a downward tendency. Satisfactory, but not record breaking, business was recorded for a majority of companies with a few conspicuous successes and a few conspicuous declines.

Looking forward to the second half year from the basis of current conditions, the Guaranty Trust Company of New York in a recent bulletin points to recent recessions in several lines, chiefly due to seasonal influences as in the automotive industry itself, and then adds:

"Very few branches of production or distribution however, show any sign of positive reaction. In basic industrial operations, in sales volumes at wholesale and retail and in fundamental financial conditions, there is ample evidence to support the belief that business in general is on a sound basis."

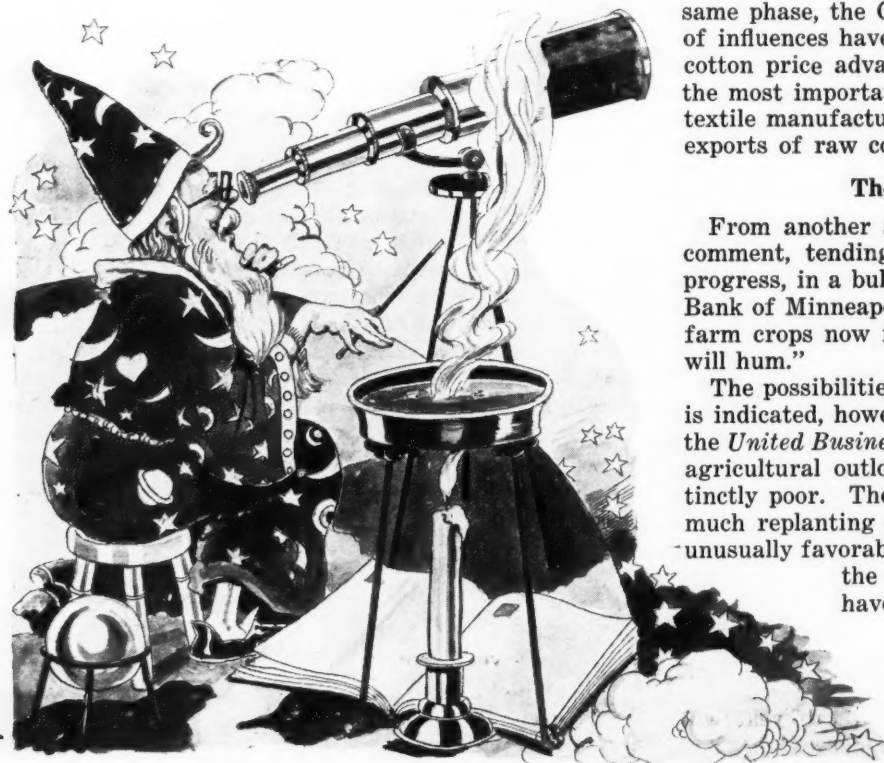
Some fears about the prosperity of agricultural districts and the possibilities of ill effects on automotive sales are to be reckoned with, but even here there are bright spots which add logic to an optimistic view. A special report to *Automotive Industries* from Atlanta, for example, points out that "The outlook in Georgia is considered good for the last half of the year due to the exceptionally high cotton prices prevailing, which give Southern business generally a much better feeling as regards the future outlook." Commenting on this same phase, the Guaranty Trust Co. says: "A number of influences have combined to produce the remarkable cotton price advances of the last six months. By far the most important is the increasing activity of cotton textile manufacturers abroad, with a resulting gain in exports of raw cotton from this country."

The Agricultural Outlook

From another section of the country comes further comment, tending to be optimistic about agricultural progress, in a bulletin from the Northwestern National Bank of Minneapolis. "All are agreed," it says, "that if farm crops now in sight fulfill their promise business will hum."

The possibilities of soft spots in some rural districts is indicated, however, by the following statement from the *United Business Service* which points out that: "The agricultural outlook for the northern corn belt is distinctly poor. The spring has been cold and backward; much replanting of corn has been necessary, and only unusually favorable weather from now on would retrieve the crop situation. Instead of this we have the long range forecast of Herbert Janvrin Browne warning of frosts and further severe weather conditions."

The somewhat general although not large decline in wage levels has not tended to add to the buying



owner of industrial areas, but no marked slowing up of major proportions seems likely.

The generally optimistic attitude of many retailers and wholesalers as the industry enters the second half year is particularly encouraging. In special reports to *Automotive Industries* from fifteen key areas throughout the country, a general belief in the stability of automotive sales during the next two quarters is revealed. Only in one or two instances is there a definitely expressed belief that sales will be behind those of last year.

Used Car Stocks

Used car stocks in general seem to be a bit higher rather than lower than at this time last year. While reports from New Orleans indicate an improved used car situation in that city, stocks still are high there, and poor sales or unusually high stocks are reported from such other important areas as central and northern California, Milwaukee, Atlanta and Dallas. Los Angeles reports an unusually good condition of used car stocks.

While used car difficulties cannot be said to have abated in any way, there are definite evidences in some places at least that dealers have determined to get their used car business on a good basis at any cost. An interesting report by a competent observer reached here the other day from an important city in the middle West indicating activities along this line. The report says in part:

"Have the motor car dealers decided to 'look out for number one'?"

"A study of conditions in this city at least would indicate that the dealers have one eye open—the eye that looks after the used car business.

"There probably is not a dealer here who will openly admit he has sacrificed new car business to make used car sales. But he probably has his fingers crossed when he makes the denial, for never in the history of the motor car business here has used car stocks been as low as now. New car sales are 'not so bad,' the figures showing only a slight falling off over last year and this on the lower priced cars. But the usual gain is missing. And it is not missing because of business and economic conditions in the Middle West.

"In the last few years several apparently strong companies have either gone broke or quit business to keep from being forced into receiverships—with the used car situation the underlying cause. Other companies were only saved by 'the skin of the teeth.' The lesson finally has begun to sink home.

"One of the larger companies here, a few months ago, figured up a profit of \$30,000 for one month—and then found that every dollar of this profit was tied up in used cars. The owner of this company probably would deny with much heat that he has sacrificed new sales for used—but the fact remains his used car sales began to climb with new sales about holding their own. His used car stock now is at a very low point. And so it goes in a number of other cases.

"Dealers here who have made a deep study of the situation believe that unless some established and workable plan is evolved the motor car dealer more and more will look after his used car business at the sacrifice of new car sales—for what does it profit the dealer to make new sales and have his profits tied up in used cars?"

Just how definite or how widespread efforts of this kind may be cannot be stated definitely, but such straws are worth watching.

Possibilities for profits in the second half year will depend largely upon the individual efficiency of particu-



lar establishments just as it has in the first half, both in the manufacturing and the merchandising field. Just as some manufacturers have had unusual successes and others have gone down to unusually low levels, so there has been a variation in the amount of business done by distributors and dealers. A survey partially completed by *Motor World Wholesale*, for example, shows that out of 159 typical distributors reporting, about 44 per cent did a greater dollar volume of business the first half of this year than in the first half of 1926. Something like 50 per cent did a smaller dollar volume, the remainder being accounted for by those whose performance thus far has been just about the same as last year. This same group of distributors indicates the total value of used cars on hand to be very nearly the same as at this time last year.

There is every indication as the third quarter progresses that dealers' new car stocks in general are about normal. Retailers in some lines have on hand an excess of old models of which they must dispose before new lines are announced, but the situation in this regard probably is better rather than worse as compared with other years.

In more than one city the straight bargain sale is being used as a means of clearing out these old stocks. A good many retailers have come to feel that such bargain sales, similar to those held by every other kind of merchant, constitute a quicker, franker and more profitable means of clearing the decks for action on the new models than any of the other means of price reduction through excess trade in allowances which have been adhered to commonly in the past.

With general business holding firm, with dealers and distributors in at least as good shape as usual as regards new and used car stocks and with a multitude of improved designs already announced or about to be announced, it seems safe to assume that the last six months of 1927, although they may not result in sales figures quite equal to those of the first half, will produce good normal business for the automotive industry.

The trend of recent business in specific areas is outlined concisely in the following special reports.

New Orleans

A careful analysis of the automotive situation in New Orleans for the month of June indicates a decided recovery from the flood depression which was felt so strongly in April and May.

The used car market, which was probably in the worst condition in the history of this city last month,

is looking considerably better now. A few dealers were forced to move their stock of used equipment at a large sacrifice in order to meet their overhead expenses. The market is now, however, becoming pretty well stabilized, and cars are selling again at about normal prices, and few dealers are at present heavily stocked with used cars.

The outstanding feature of the market here, at the present time, is the fact that there is a comparatively small volume of sales of cars in the Ford, Chevrolet, Essex and Pontiac class, due to the desire of prospects to see what the Ford Motor Co. will have to offer. However, the sale of higher priced cars in New Orleans, at the present time, is about on a parity with that of the same time last year.

There has been a substantial drop in the sale of accessories by the local jobbing houses, due to the flood condition which is curtailing buying power over a wide area supplied by New Orleans houses.

Trade in general is optimistic over the outlook, as the automobile market in most cases, has not suffered as much as other lines of business, and it is generally felt that as soon as the process of rehabilitation in the Mississippi Valley begins, which is expected within the next few weeks, business in general will show a rapid rise.

Los Angeles

June southern California sales were appreciably ahead of June last year, but under May 1927 by a narrow margin. Used car stocks are unusually low with excellent demand. Ford sales were one-half June total last year, which slump is reflected in sharp increases for other small cars, notably Chevrolet. Los Angeles distributors conservatively optimistic over outlook for last six months, although it is not believed sales in this territory will reach proportions same period last year.

Truck market shows slight improvement, although still unusually slow. Resumption activity in oil industry scheduled for next few months expected stimulate sales. Used truck stock heavy.

Atlanta

Though the tire, accessory and general equipment business in the automotive field in the Southeast has been unusually active the past month, showing a steady gain over last year, the demand in the motor car field has only been about normal and somewhat less than last year since June of 1926 was a particularly good month in this district. One difficulty is the fact that used car stocks are exceptionally large right now, and that there is still a large percentage of repossessions reported by the dealer trades.

Cars of the lower and medium priced class have been moving well the past month, especially the Chevrolet which reports a much better business than last year, while better sales are also reported by Buick and Studebaker. The average, however, has only been normal for most cars in this class, and less than last year. In the higher priced class business has been less than normal and quite a bit less than last year. The outlook, however, is considered good for the last half of the year in all branches of the business due to the exceptionally high cotton prices prevailing, which have given southern business a much better feeling over the future outlook.

Truck sales in June are reported to have been somewhat better than normal and also slightly better than they were in June, last year.

For the first six months of the year automotive sales have been below the normal level, it is stated, in the southeast, and considerably below the corresponding period for last year.

Detroit

Motor car sales in Michigan will register sharp decrease in June compared with May. The condition applies to passenger cars, commercial and used automobiles. The fact that thousands of men are laid off in motor car plants, especially the Ford organization, awaiting plant changes which are preparatory to the introduction of new models, has had a far reaching effect on car sales and business in general in the Wolverine state. There is a feeling, however, that the demand for cars will be keen throughout the country, this fall, with a result that Michigan factories will be enjoying excellent business, which in turn will reflect itself favorably in retail sales in the state.

Denver

June seems to have been quite satisfactory, an improvement over last June, and over May this year. Fords have been weak all year, and since the announcement of the new models soon to appear, dealers have been working frantically and without much success to get rid of present cars in stock. Other light cars insist that their business has not been affected, but their June sales do not appear to equal May. There is a noticeable tendency in light cars to overstock in trade-ins. Heavy cars are doing better, particularly in certain lines where new distributors are injecting pep into the field and increasing the number of dealers. Heavy trucks uniformly report that their business is coming from big firms, and that small business seems to be at a standstill as far as their sales indicate. Light trucks had an excellent business late in April and early in May, with some slump in June. As for the last half of 1927, optimism prevails. Crop conditions are much better now than seemed possible six weeks ago.

New York

A moderate seasonal recession in new car sales in the metropolitan area during June, as compared with May is indicated by the preliminary figures. For the first two weeks in June, actual new car sales were 6329 in Greater New York and adjacent counties against 14,189 for the entire month of April, according to Sherlock & Arnold. The total for the two early weeks in June compares with 7585 in the corresponding two weeks of June, 1926, a drop of 16.5 per cent. This is about the ratio of loss that has been maintained throughout the year in the New York territory. It cannot be ascribed entirely to the falling off in Ford business, as Ford sales were never as big a factor in the metropolitan area as in the country as a whole.

Used cars have been selling very well and in view of the conservative trading practices of the metropolitan dealers this end of the business is in very satisfactory condition. Stocks were reduced considerably in June and are probably slightly under those of a year ago. There are no seriously depressing conditions in any of the important lines of business around New York and dealers are confident that buying will revive on a substantial scale after the new models are out.

San Francisco

Dealers are optimistic on the outlook for the remainder of the year in central and northern California
(Continued on page 70)

Connecting Rod *Manufacturing* Methods

Much variation in methods used by important car makers despite standardization of some phases of the process.

By A. F. Denham

IT might be assumed that machining of babbitted steel connecting rods would be fairly well standardized by this time. Boiled down the operations consist of finishing the piston pin hole (including the bushing, or lock screw hole), babbitting the big end, facing the big and small end sides, rough and finish boring the big end, splitting the cap from the rod, and facing off the cap and rod contact faces. However, a survey just completed, covering the operations used for eleven different makes of engines, indicates that there is considerable variation in the methods used.

The use of machines of different types is largely responsible for some of the differences in methods, grinding alternating with milling, drilling with broaching and diamond boring, die casting with centrifugal babbitting, and coin pressing with both grinding and milling.

There also seems to be some difference of opinion regarding the relative value of shimless and shimmed lower rod bearings, one faction claiming that shims are superior as they make it unnecessary for service stations to file off contact surfaces in taking up rods; the other side maintaining that a shim adjustment is not sufficiently accurate and that worn rods should be replaced or rebabbitted. This difference of opinion leads to an interesting difference in big end rough drilling operations. When using a shimless rod it is necessary to either machine an elliptic hole in the lower end of the rod, to allow for the material cut out of the rod when splitting off the cap, or to re bore the rod big ends after splitting to obtain perfect semi-circles in both cap and rod halves, since the babbitt should have an even thickness all around. With a shimmed rod this is not always

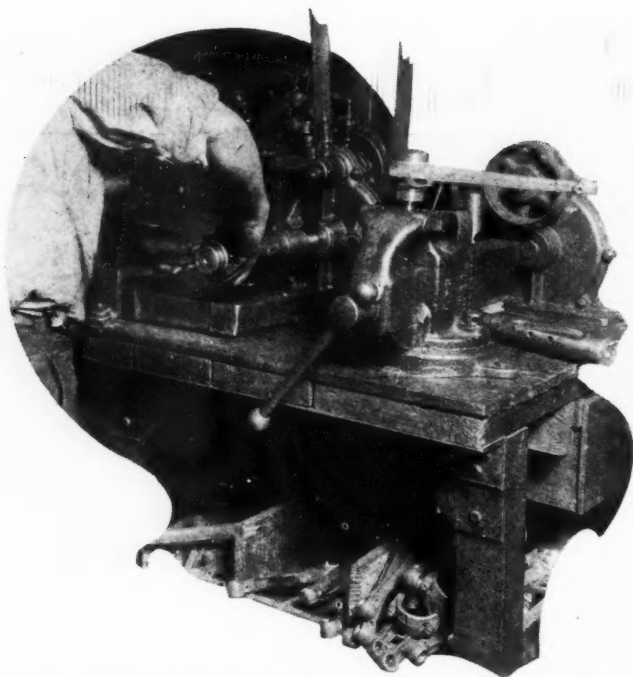
necessary, as the shim sometimes takes the place, in such cases, of the material cut out of the rod by the cutter used in sawing off the cap.

There is a further divergence in production methods among manufacturers who do not use shims to replace the material cut out of rod big ends by splitting cutter. In most cases the rod is bored once before splitting. Following the splitting operation, which is generally performed with one side of the cutter along the center line of the big end bore, the caps are rebored to obtain an exact semi-circular hole in this half also. On the other hand some manufacturers bore the rod twice, the second time 1/32 in. off center, before splitting cap and rod, while still others do not bore big ends until after the splitting operation, cutting, instead, an elliptic chamfer in two operations, to facilitate boring later.

Coin presses, disk grinders, both double and single disk, and millers are all used for rough finishing connecting rod faces. Coin presses seem to be slightly in the majority at present. Such presses range from two to 1200 tons in capacity, and in at least two cases (Hudson and Oakland) are equipped with automatic feeds. There is a further difference in coin press die construction. While the majority of manufacturers using the coin press method merely strike the pin and large end faces, simultaneously with one blow, Hudson is developing an adapter for its coin press which will strike one end at a time, to eliminate cold flow of metal toward the I-section, or buckling of the rod. In the coin pressing operation used by Oakland, the webs as well as the bosses are struck by the dies, to prevent buckling of the rod during the coin pressing operation.



The use of felt rollers running through acid helps to keep tin from parts of the rod where its presence is not wanted, and reduce cleaning operations. This method is now in use in several automotive plants



Single blade reamers are sometimes used for finishing big end bores. This one used by Buick is of the spiral blade type. Note reamer at right

Disk grinders are also quite widely used. One manufacturer uses a single disk Osterholm grinder which is featured by an unusually large water flow. On this grinder four rods are held in a fixture which oscillates across the face of the revolving wheel while each side is being ground separately. An extremely rapid disk grinder is used by Chrysler. This is of the double disk type, the large ends only being faced off. However, the disks in such a grinder are subject to a rapid wear and require frequent checking, adjustment and replacement,

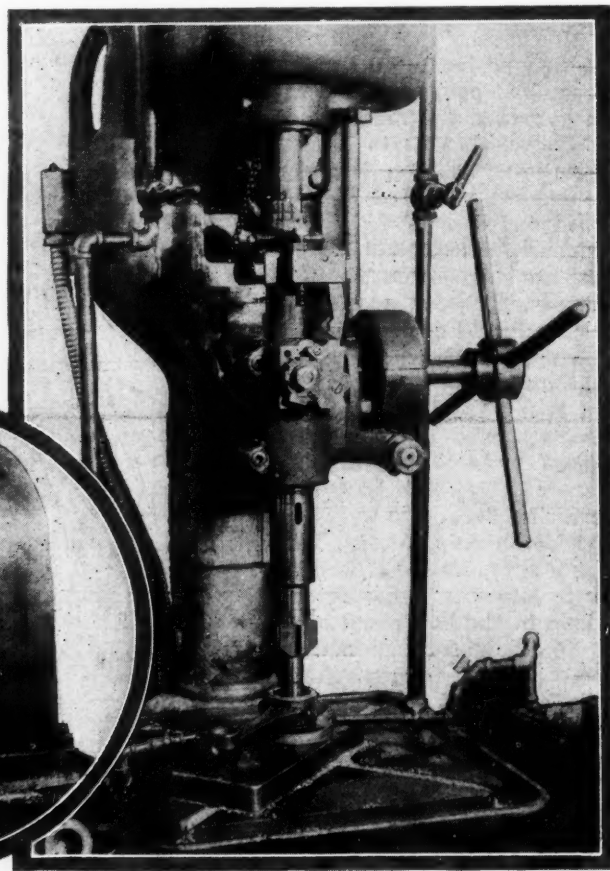
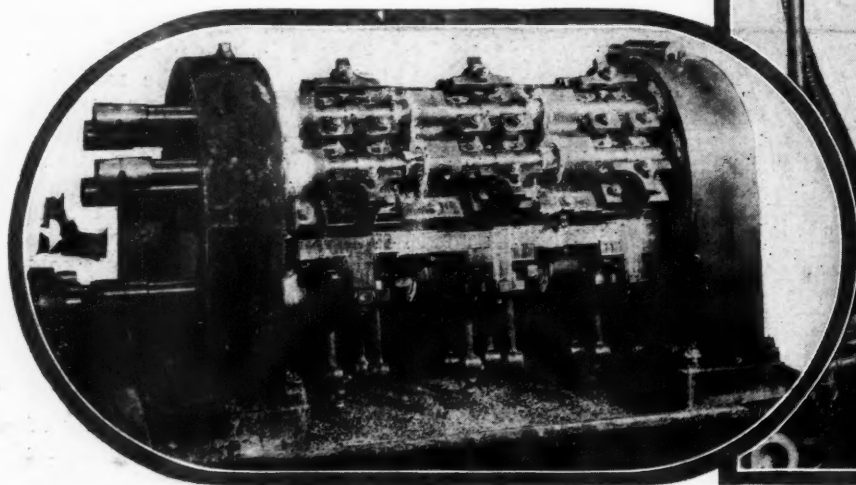
which to some extent tends to offset the rapid facing obtainable. Oakland also grinds big end faces, using a Gardner hydraulic two disk machine. It is claimed that with the proper types and care of grinders, accuracy to within 0.004 in. can be obtained.

Where time is not too large a consideration, milling has considerable merit due to the accuracy obtainable. When millers are used the rods are generally straddle-milled, lower rod ends only being machined during the milling operation. Fixtures for straddle milling generally hold from 4 to 6 rods. Some manufacturers also spot-face big end sides before the babbitting operation. In the case of one manufacturer of sixes and eights, this operation is performed by a tool which also countersinks the bore and cuts corrugations in the bore to provide a better bond between babbitt and rod.

After facing the boss sides, the next operation most generally performed is the boring out of the piston pin hole. There is a trend at present in the large production plants toward the adoption of machinery which will enable the simultaneous rough-boring of both piston pin and crankcase holes. Such a machine is already being used by Paige and others, while several other important plants will be using this method before the year is out, from all indications. The machine used by Paige is a two-head Baker drill press provided with a cam-operated fixture which automatically clamps the rod in place. Two men operate a battery of eight such machines. The number of cuts taken out of the piston pin hole varies. Sometimes a single cut is sufficient, though two cuts are more generally used. These have to be followed, of course, by a reaming operation, whether or not a bushing is used. Cincinnati, Avey, Moline, Barnes and Footburt drill presses are among those frequently used, grouped in gangs of four or six, half of

To facilitate boring of cap and rod halves after splitting, eccentric chamfers are cut in the big end by Oakland. Note the non-clamping type fixture used. Two Cincinnati hand drills are used for this operation

An interesting machine is used by Oakland for boring of cap and rod bores. 12 rod or cap halves are bored at one time. No boring of big ends is done before splitting cap and rod.



each set being used to bore the pin end, and half the crankpin end.

On the rough boring of the big end there is a somewhat wider divergence. This is partly due to the fact that some manufacturers use a shimmed rod, while others do not use shims. As has been mentioned, in case a shimless rod is used it is necessary to rough machine an elliptic hole in the large end before splitting, or else rebores either cap or rod or both, since about 1/32 in. of stock is cut out when the cap is split from the rod. Of the manufacturers covered in the present survey, three form an elliptic hole before splitting the cap from the rod, and while Oakland at present does not form an elliptic hole, it does cut an elliptic chamfer in the big end to facilitate boring later, thus eliminating one boring operation. In cutting this chamfer, two operations are used, employing in each a non-clamping fixture which locates the rod from the piston pin hole and the bolt boss sides. In the shimmed rods, drilling of an elliptic hole or re boring after splitting is generally avoided by using shims of a thickness equal to that of the material cut out in splitting the cap from the rod. Keeping one side of the cutter used for splitting cap and rod on the centerline of the bore makes it possible to reduce re boring later by 50 per cent, since two caps can be bored at one time. Paige uses this method. Ohio tilted rotary, Cincinnati, LeBlond, Newton, Gooley and Edlund, and Rigidmil millers are among the machines widely used for the splitting operation, the present survey would seem to indicate.

Cap and rod contact faces are generally ground after splitting. Oakland has an interesting machine for this operation. It consists of a Gardner hydraulic grinder with a rotating fixture of constant feed. Caps and rods are inserted in this fixture, which is self-locking. The machine is said to give an accuracy to within 0.004 in. Contact faces in some cases are also milled, while hand filing is also used for finishing the faces, though only in one or two instances.

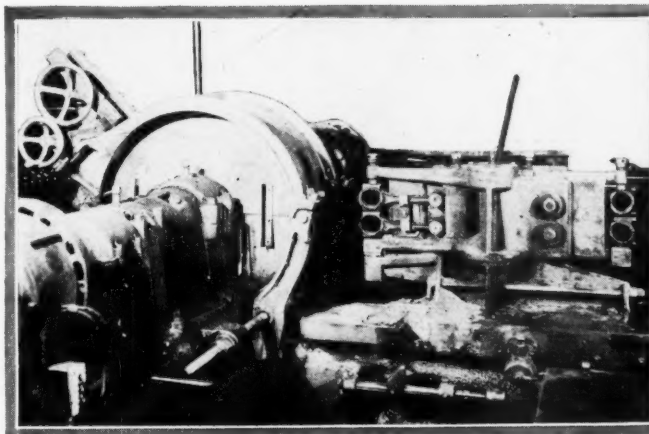
Of the manufacturers who rebores caps or rods after the splitting operation, Olds used a cam-operated fixture on a four-spindle Rockford drill press, the fixture holding cap and rod together without assembling the rod. Oakland has a special machine which consists of six sets of clamps on a vertically rotating indexing fixture, each set holding 12 rods or caps, the sets being arranged in the form of a cylinder, as shown by an accompanying photograph. Six cutters, one for each rod or cap half, are mounted on each bar, and two bars are operated at one time in boring out caps or rods. One cutting operation by means of this machine finishes 12 rods or caps, while 24 rod or cap halves are being



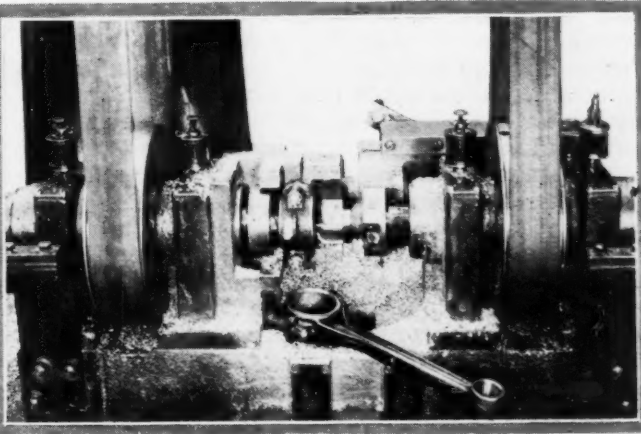
Use of quick acting chucks such as this Magic Chuck used by Buick produces time saving in enabling drilling, reaming and spotfacing operations to be performed at one mounting of the rod. This photo shows pin-end lock-screw machining

mounted in the other fixtures. Buick assembles rods for re boring, as does Essex.

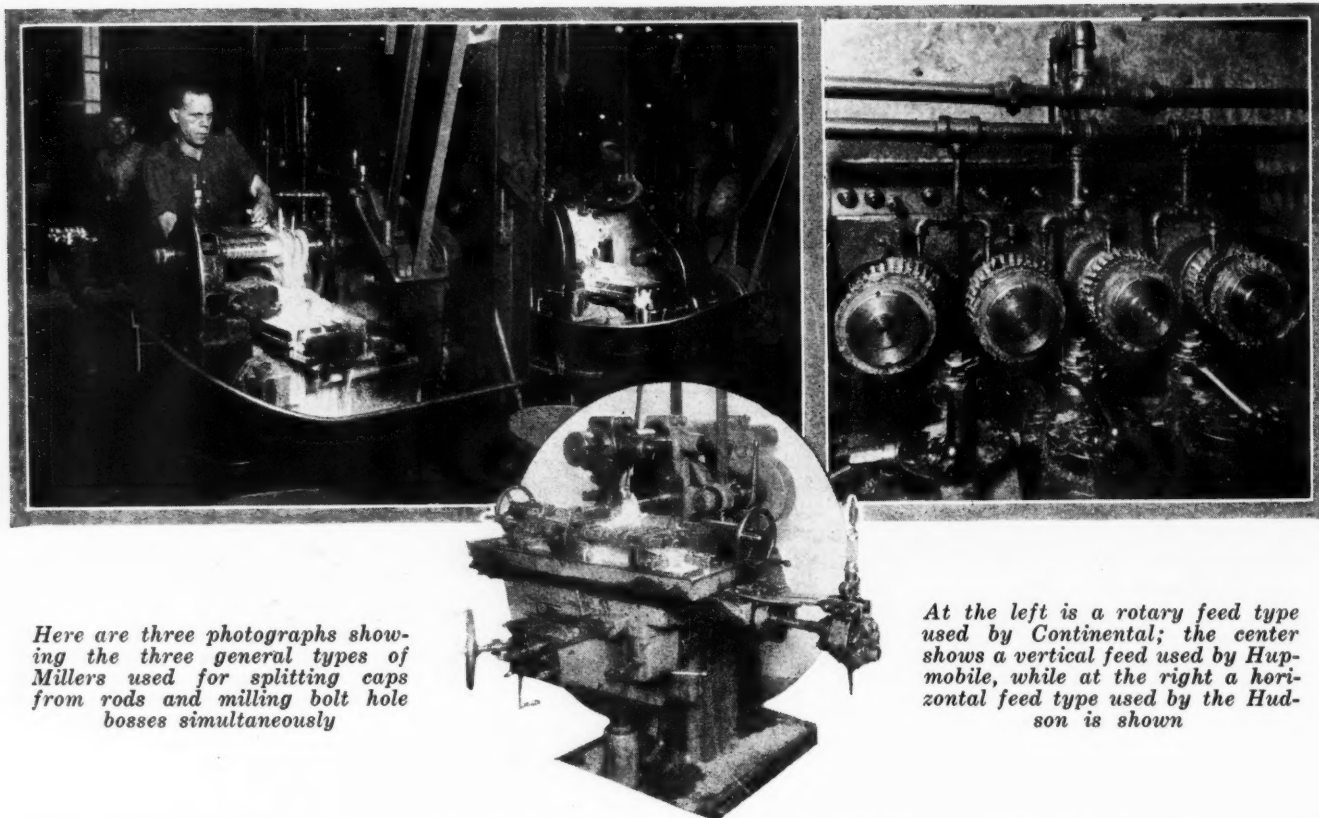
There is also considerable difference in the method of boring the bolt holes in the large end. In about half of the plants visited these are drilled and reamed separately in the cap and rod after the two have been cut apart, in which case drilling is done from the contact surfaces of cap and rod. Other manufacturers, including some very large producers, using rods with die cast big end bearings and Chrysler on its rods with centrifugally spun bearings, drill these bolt holes before splitting cap and rod, and in most cases use multiple spindle drill presses with indexing rotating fixtures, as one set of drills cannot generally be used to drill completely through the rod. The Hupp Motor Car Company, however, has developed a method and tools which enable it to drill completely through the rod and only a single drilling operation is used, followed by reaming, thus eliminating one operation. Four rods are handled at one time. Bausch multiple spindle drill presses are



Grinding of big end faces is becoming common. This Gardner hydraulic machine used by Oakland finishes both faces on two rods simultaneously to within 0.004. Note the use of an indexing fixture.



This machine used by Paige for chamfering, semi-finish boring and spotfacing of babbiting big ends is reversing, both sides being finished without removing the rod



Here are three photographs showing the three general types of Millers used for splitting caps from rods and milling bolt hole bosses simultaneously

At the left is a rotary feed type used by Continental; the center shows a vertical feed used by Hupmobile, while at the right a horizontal feed type used by the Hudson is shown

rather common for this type of work, while Footburt and other machines are also often used. All have indexing fixtures, with from two to four rods indexing.

With rods having spun-in big end bearings, drilling of bolt holes is generally performed after spinning in the babbitt. This, of course, is due to the fact that with spun-in bearings there is more chance for babbitt to find its way into the bolt holes, requiring a reaming operation. Paige, however, gets around this problem by splitting the rod before babbitting and re-assembling cap and rod with two high-clearance bolts and paper shims for the spinning-in operation, thus preventing the entrance of babbitt into the bolt holes.

Facing off of tops and bottoms of big end bolt hole bosses is pretty well standardized at present. In most cases this operation is performed simultaneously with the splitting of the cap from the rod, by straddle-milling the bosses. However, in one or two plants this general scheme is not followed. Oakland and Buick both mill only the top side of the boss at the time of the splitting operation, spot-facing the cap ends of the bosses later, Oakland using an automatic feed, two-spindle drill press for the latter operation.

Die-casting and centrifugal spinning of babbitt are equally widely used. Rods with die cast bearings are split before babbitting. Most of the rods with spun-in linings are babbitted before splitting off the cap. Paige, however, splits the cap off first, assembles the rod with paper shims and spins in the babbitt, sawing cap and rod apart again after removing bolts and shims.

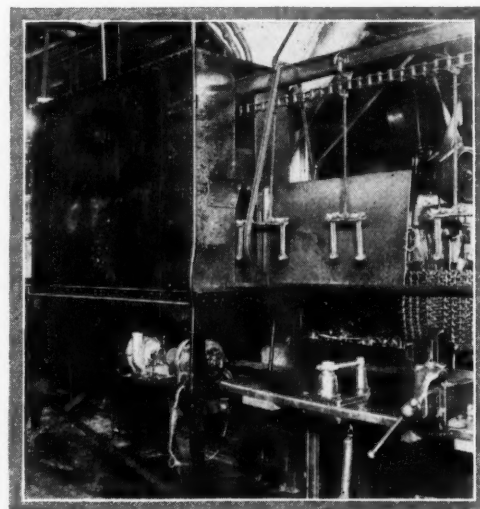
Some efforts have been made along the line of controlling the application of acid to the rod to prevent the tin from adhering to the rod where its presence is undesirable. A number of manufacturers are now dipping rods at some time before or during the machining operations in a solution of silicate of soda, varying in strength from 10 to 25 per cent, silicate of soda having the property of insulating the rod against action of the acid flux. At least one manufacturer parkerizes its rods before finishing machining of the big end bores

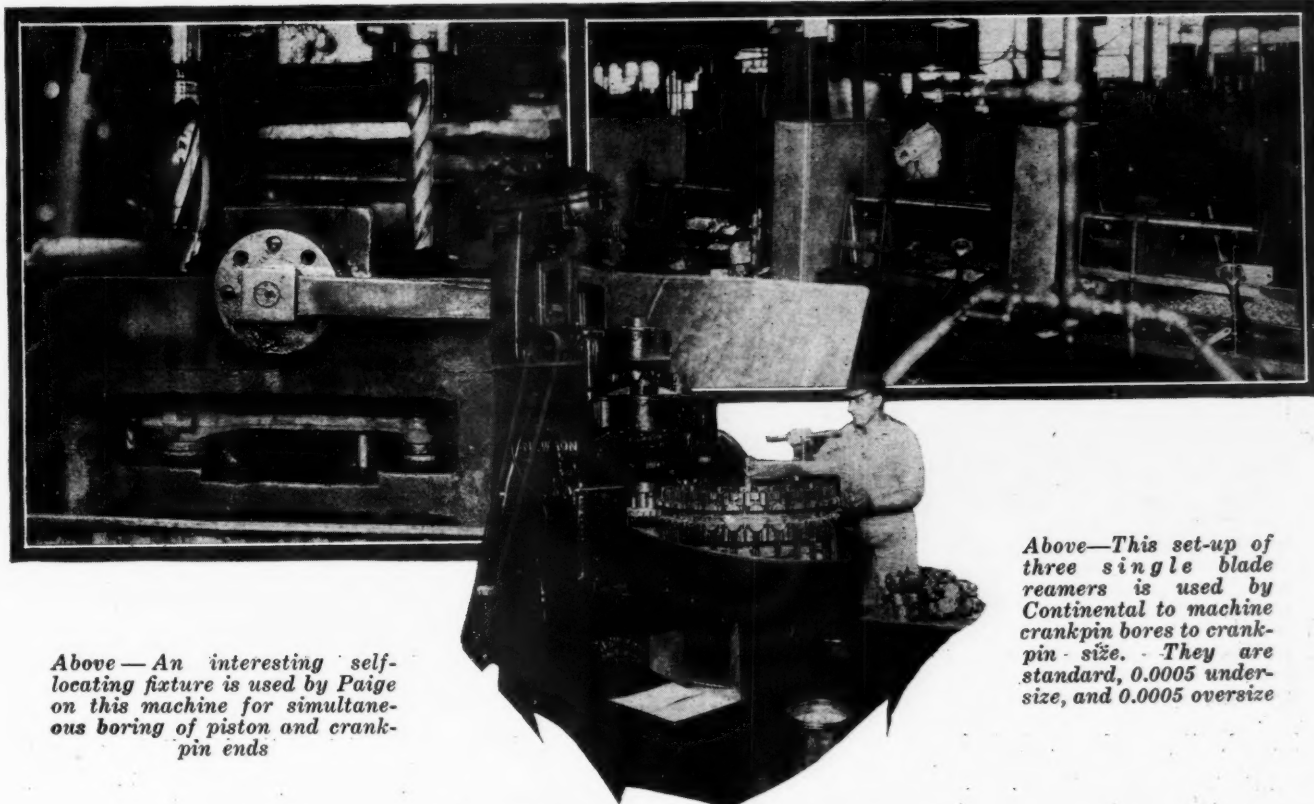
previous to babbitting, which, aside from rust-proofing the rods, also prevents babbitt from adhering where it is not wanted.

Another method used to prevent the adhering of babbitt is to apply the acid only to surfaces where tinning is desired. This is done either by hand or by means of a revolving felt roller, dipping into the acid, and shaped to fit the bore and side of the rod.

Finish-machining of the large ends of the babbitted rods also shows a considerable divergence among individual manufacturers. There is quite a problem in machining the faces of the big end to the proper dimensions. In some cases a trial machining operation is used, and a subsequent machining operation is necessary to correct any error in the first operation. Other manufacturers use drill presses provided with automatic stops, for depth of cut, but even here there may be some uncertainty regarding the thickness of babbitt left on each side of the rod. In some cases millers are used for finish facing, these having the advantage of

Conveyor systems and automatic washers such as this one used by Dodge Brothers are instrumental in reducing labor cost





Above—An interesting self-locating fixture is used by Paige on this machine for simultaneous boring of piston and crankpin ends

Above—This set-up of three single blade reamers is used by Continental to machine crankpin bores to crankpin size. They are standard, 0.0005 under-size, and 0.0005 over-size

Below—Automatic constant feed Newton Miller is used by Dodge Brothers for the milling of contact surfaces, both rod and cap surfaces being milled simultaneously. Note the semi-circular plugs used for locating rods and caps

more accurate machining, although they are somewhat slower in operation.

Rough boring of the babbitted ends is generally performed simultaneously with the facing operation, the tool being designed to face, bore and chamfer. In two cases at least the entire work of spot-facing and chamfering of both sides is performed in one operation by the use of reversing drill presses or lathes. Several manufacturers also hollow mill outside diameters of babbitt flanges. This applies more to rods with spun-in than to those with die-cast bearings.

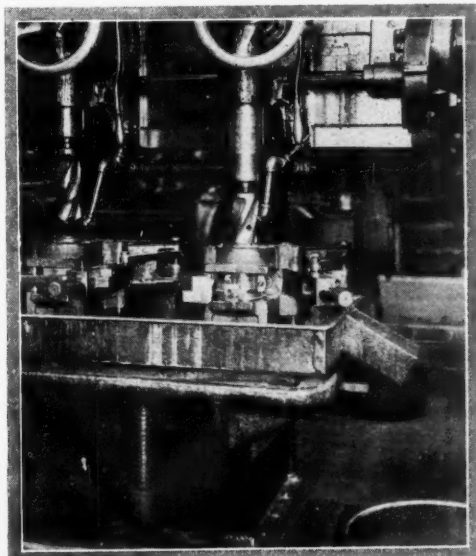
Diamond boring of big ends has not as yet come into wide use. Only two of the companies visited finish the crankpin bore on a diamond-boring machine. One man-

ufacturer of sixes and eights uses a machine built by the Automatic Machine Company designed to diamond-bore piston pin and crankpin holes simultaneously.

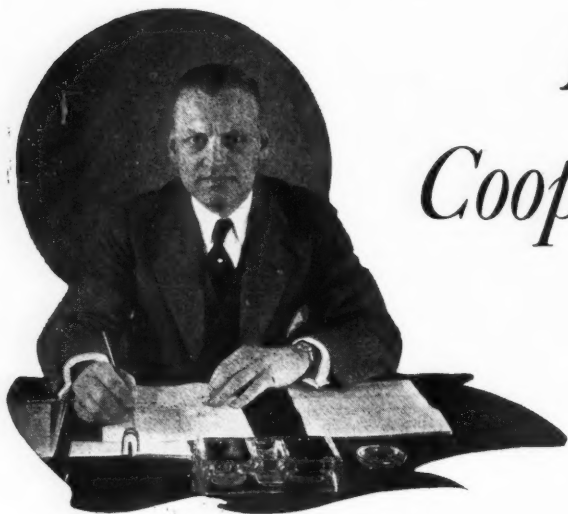
Several manufacturers are at present diamond-boring piston pin bushings, Oakland and Paige being among those using this method. They employ carrier-feed lathes with special heads, belt driven, running at about 3000 r.p.m. Paige takes two diamond-boring cuts from the pin-hole, a roughing and a finishing operation. Accuracy to within 0.0002 in. is now obtained by diamond-boring, according to Oakland engineers.

At the present time broaching and reaming represent the most widely used methods of finishing crankpin bores. The broach presses used are sometimes of the single, sometimes of the double type, and range up to 20 tons capacity. Reamers are generally of the single blade variety, sometimes of the expansion type. In one or two cases the cutter is of the helical type. Buick states that its single blade helical reamer gives an accuracy to within half a thousandth. While the majority of manufacturers finish ends to nominal size, within set tolerances, holding crankshaft diameters to close limits, one or two manufacturers, in order to save on crankshaft rejection costs, do not require such close crankshaft limits and ream connecting rod big ends to crankpin sizes, using from three to six different sizes of reamers.

Finished rods in practically every case are sorted in sets according to weight. In some cases this selection is made on the basis of total weight only, while in others there is a double sorting on the basis of total weight and weight of the big end. This is done among others by Buick and Paige which assemble the rods to pistons according to total weight, and assemble them into engines according to weight of the big end.



Reboring caps after splitting from the rod is done by Paige by clamping two clamps together as shown. Rod halves do not have to be re-bored since one side of cutter was placed on centerline of bore in splitting



Harry G. Moock

A. E. A. Seeks Cooperation to Increase Dealer Profits

By Harry G. Moock

THINKING men have come to a realization—partially at least—that the average motor car dealer can no longer exist on his new car business alone.

Preach all you please. Tell dealers they should make a profit on new car trading. Point to the comparatively few that do—and when all has been said and done along this line, the dealer who constantly loses money must sooner or later be replaced by another.

What can be done about it, conditions being as they are? Here is the answer—one answer, at least:

1. Set the car dealer up as an automotive merchant.
2. Show him how to properly install accessories, parts and service departments—and how to operate them profitably.
3. Show him how to make them get him more new car and used car business.

We do not advocate taking the dealer out of the new and used car business. On the contrary, we want him to continue to sell cars. We want the automotive business to be attractive to capital. We want it to get easier—not harder—for factories to get dealers. We want more dealers to sell more cars.

The constant unrest among the thousands of car dealers—the necessity upon the part of motor car manufacturers, of constantly replacing dealers—the ever-increasing cost of this replacement—the decreasing lure of the business—all are due to the fact that it is not possible for the average motor car dealer to make an adequate profit in car trading.

Net Profit Essential

There is but one standard for business health—net profit. Not only must the dealer stay in business, but his business must be prosperous. When the end of the year rolls around and he checks up, his business must show a profit—even if some of his car transactions have been carried on at a loss.

If every department of his business can show a profit within itself, so much the better. But the first job—to repeat this all-important statement—is to see that his business as a whole is prosperous.

Let us remember that we must deal with “average dealers.” What the dealer body may be some day is not of primary importance today. We are selling motor cars and other automotive products through dealers as they are today. And it is this “as is” dealer—the “av-

erage dealer”—the dealer body of today, that must be made prosperous if all trade groups are to prosper today.

Edward Payton, analyst of the N.A.D.A., says: “I am led to conclude that the average dealer has little chance to earn an adequate net profit in his new car department alone. He must depend on non-car departments for his major profits.”

Sell to the After-Market

Now just consider the import of this statement. It is either true or it is not true. All facts point to its truth. Being true, something must be done about it. We suggest the remedy—awake dealers of the country to the profit potentialities of the after-market—the sale of accessories, parts and service. Show them how to get these profits. In this way—without any disturbance or reform movement whatever—dealers in the United States can turn their establishments into profitable, going concerns.

I believe this platform to be the most constructive that could be offered to the trade at this time. I recommend:

1. That all trade groups join in a campaign designed to keep motor car dealers in business permanently by showing them how to make money.
2. That every motor car manufacturer, each in his own way, take immediate steps to awaken his dealers to a realization of the profits to be made from the sale of accessories, parts and service.
3. That every motor car manufacturer, each in his own way, show his dealers how to install and operate such departments.
4. That national associations, representing various trade groups, conduct campaigns through their individual memberships, for the purpose of assisting in awakening dealers to the necessity of making money.
5. That local dealer and trade associations conduct similar campaigns with the same end in view.
6. That the trade press cooperate in this campaign, supporting it with articles containing facts, figures and illustrations.

Let us all unite in the common cause. Then, with the dealer awake to the possibilities of profit, each individual concern in the trade has the opportunity for

MEMBERS of the Automotive Equipment Association have pledged nearly one million dollars to be devoted during the next three years to the development of better methods, markets and service in the automotive industry.

Harry G. Moock, managing director of the Greater Marketing Development, organized for carrying out this work, has just made public a clear presentation of the platform on which he is planning to operate. Part of his statement of principles is given in the accompanying article.

Before taking up his present activities, Mr. Moock was promotion sales manager, Hudson Motor Car Co., and previous to that was general manager of the National Automobile Dealers Association.

getting business in proportion as its own organization goes after it efficiently.

The Greater Market Development of the A.E.A. pledges itself to assist car manufacturers and other trade groups in every possible way in the common cause.

I have outlined a definite, concrete way in which dealer losses may be turned into profits. There may be other ways of doing the job. If any other program is advanced, which is sound and practical, and has for its purpose keeping the dealer in business, the A.E.A. Greater Market Development will get behind it as actively and enthusiastically as it now urges support and approval of the foregoing.

Every car dealer automatically becomes a better car dealer when all departments of his business show proper profits and bear full share of operating expenses. During recent years, without any concentrated effort showing him how, car dealers have been turning to the sale of after-market products as a source of additional profits. That is one outstanding reason for the decrease in dealer mortality, which reached its peak in 1922.

The 43,409 retailers selling accessories in 1919 averaged per unit during that year, \$3,145 in accessory sales. During 1926, 68,764 retailers averaged \$4,850 each in accessory sales, a substantial increase, when the total increase in number of trade units is taken into consideration.

Annual service sales (parts and labor) per service station averaged \$17,600 in 1919 and in 1926 averaged \$21,800. This represents an increase of nearly 24 per cent in seven years in spite of the fact that during that period the number of better service stations practically doubled.

Seven years ago 39 per cent of all retailers selling accessories were car dealers and 61 per cent were garages, retail stores and other outlets. Last year, out of 58,584 retailers of accessories, 51 per cent were car dealers and 49 per cent were other automotive trade units. While the number of trade units selling accessories has increased 53 per cent in seven years the number of car dealers interested in accessories has increased about 100 per cent.

These facts indicate that competitive sales condi-

tions have already forced increasing numbers of car dealers to take a more active interest in accessory and service sales. Since this is true, it follows that the development of the after-market will yield substantial profits to car dealers and make them less dependent on profits from car sales alone. It is in this connection that the greater marketing development program of the A.E.A. assumes a position of major importance.

Flight-Test Climb Data

AS a means for overcoming the present confusion in interpreting flight-test climb data, L. V. Kerber, Daniel Guggenheim, Professor of Applied Aeronautics, University of Michigan, has proposed a standard procedure for this calculation which has been published in a recent University bulletin.

Assume a column of air with a base of one square foot, a height of ΔH in tape-line feet, a mean mass density of δ_m . Then the pressure at the bottom of the column is greater than that at the top by an amount equal to the weight of the column of air or, if P equals pressure,

$$\Delta P = \delta_m \Delta H$$

If this result be divided through by Δt and transposed we get

$$\frac{\Delta H}{\Delta t} = \frac{\Delta P}{\Delta t} \frac{l}{\delta_m}$$

Passing to the limit,

$$\frac{dH}{dt} = \frac{dP}{dt} \frac{l}{\delta_a}$$

where $\frac{dH}{dt}$ is the true rate of climb, that is, the tape-line distance interval per unit of time. δ_a is the actual density at the limit.

Since the barograph record has really been calibrated by pressure intervals, it will only be necessary to plot the times to certain pressures against pressure, find the slope of the curve at various pressures and divide by the mass density corresponding to the actual temperature observed at each pressure, in order to get the true rate of climb.

If ΔP be expressed in inches of mercury and if the density be regarded as relative to ground density, its expression becomes

$$\Delta H = C \Delta P \frac{l}{P_m}$$

where C is a constant and P_m is the mean density ratio. Now, if from standard air tables, values of pressure in inches of mercury and standard relative density be substituted in the above equation the result is

$$C = 928$$

and the true rate of climb is

$$\frac{dH}{dt} = 928 \frac{dP}{dt} \frac{l}{P_a}$$

Prof. Kerber says that true rate of climb depends upon excess horsepower, which depends upon density. Logically then, he maintains, true rate of climb should be plotted against density to serve until such a time as an international standard altitude has been adopted by all the leading test organizations of the world.

New Farman Aviation Engine Follows Automobile *Design* Practice

Numbers of cylinders increased, but bore of each one decreased. Has 18 inverted water-cooled cylinders and develops 550-700 hp. Bore and stroke 4.33 by 4.92 in.

By W. F. Bradley

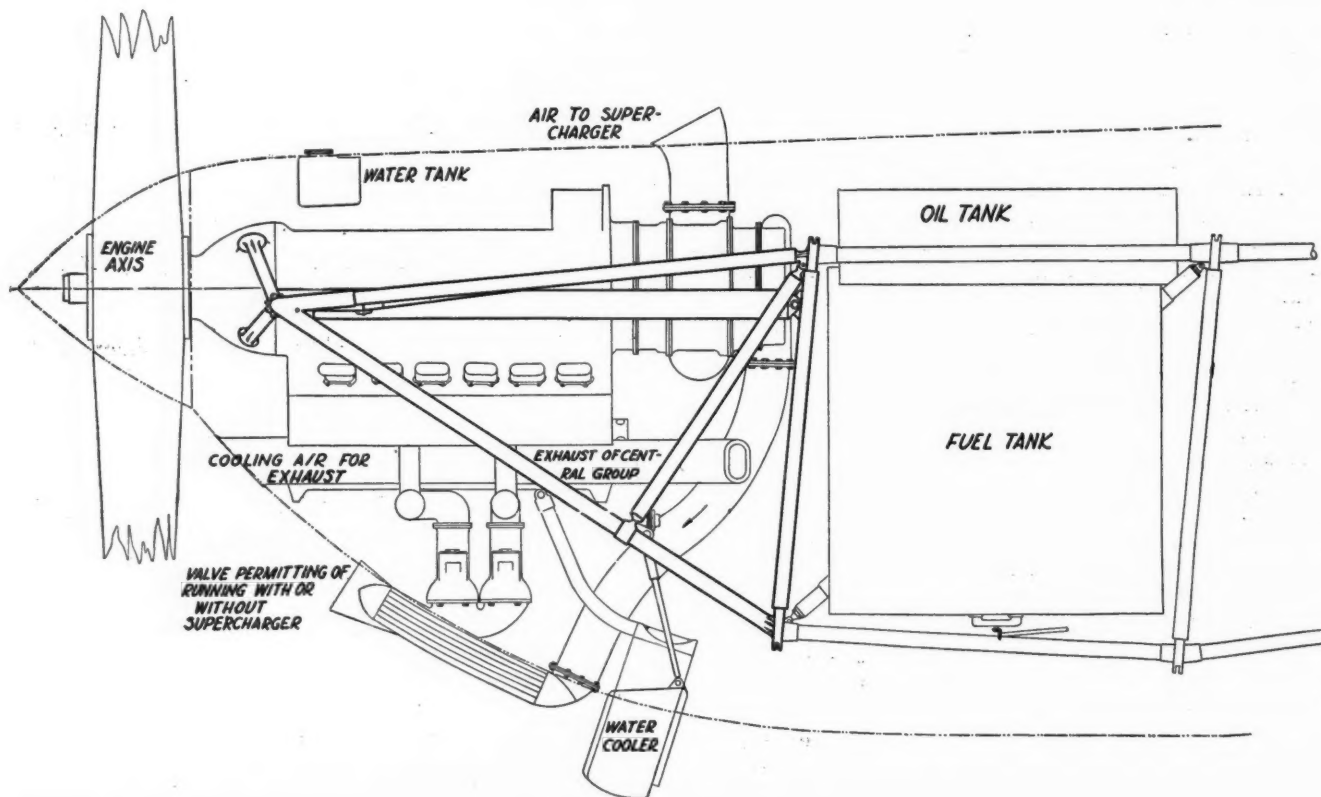
THE only company in France building complete airplanes and engines and operating them on commercial lines, the Farman Brothers of Paris, has broken new ground by the production of its 18 WI engine, which has its outstanding features reduced piston displacement, high rotary speed with a geared down propeller and 18 inverted water-cooled cylinders, developing 550-700 hp.

Its practical experience in the operation of commercial planes has convinced it that weight can be reduced and security increased by speeding up a small engine rather than by increasing the capacity of the cylinders. Small, high-speed motors were impossible, however, until a satisfactory reducing gear had been developed, which the firm claims to possess in its planetary reducing gear.

Beyond a certain bore the aviation engine is liable

to a complete and irremediable breakdown of a nature practically unknown in automobile work. This is due to higher inertia stresses and the great difficulty of adequately cooling big diameter pistons and valves: detonation, which gives little trouble on a normal automobile engine, becomes a serious problem on the big bore units for airplane service. With a view to increasing the margin of safety, low compression ratios have to be adopted, with a consequent loss of efficiency and a serious reduction in power at high altitudes.

In the new Farman engine automobile practice has been followed by increasing the number of cylinders, decreasing the bore of the individual cylinders, and running at a higher speed, with a reducing gear for the propeller. The engine has 18 cylinders of 110 by 125 mm. (4.33 by 4.92 in.) bore and stroke, compared with 130 by 160 mm., the dimensions of the 12 and 18-cylin-



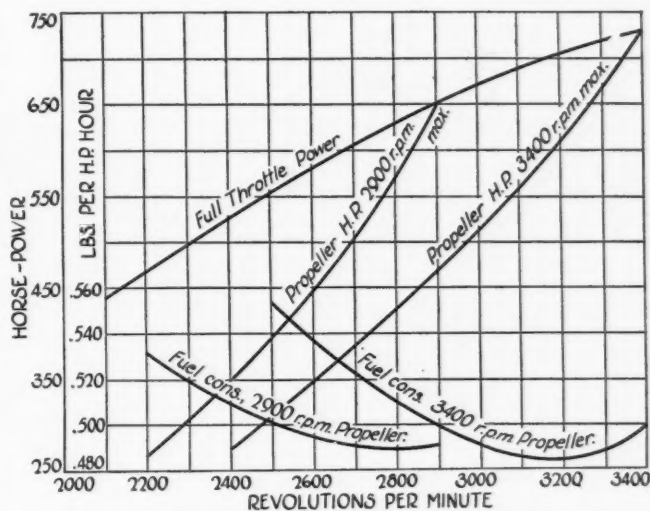
Mounting of Farman engine in Breguet 19 plane

der engines built by this firm up to the present. Instead of running at 1200 to 1600 r.p.m., the engine peaks at 3400 r.p.m. and drives a propeller geared down in the ratio 1 to 2.46. Its volumetric compression ratio is 6, and by reason of its comparatively small bore it can run on straight gasoline without the addition of benzol or alcohol. Some idea of the reduction of the inertia forces can be obtained by comparing the weights of the present engine with those of the slow speed 600 hp. Farman. The connecting rod assembly is reduced from 15.89 to 6.7 lb. The weight of the piston, without rings or pin, is dropped from 2.28 to 1.14 lb.; the weight of the piston pin is 0.70 lb., compared with 0.87 lb. With the engine running at 2800 r.p.m., giving 1138 r.p.m. at the propeller, the piston speed is only 2300 ft. per minute.

The entire engine has been inverted, the cylinder heads being at the lowest point, whereby certain appreciable advantages are gained. Most important is a raising of the propeller shaft by 20 in. which permits of the use of a propeller 40 in. larger, or, inversely, if it is not desired to increase the propeller diameter, the machine may be brought 20 in. nearer the ground, with a reduction in the head resistance offered by the undercarriage.

Fire hazards are reduced, for the carburetors are entirely below the engine, thus making it impossible for gasoline to accumulate and form vapors which might be ignited by a loose or defective ignition wire. The engine keeps cleaner, for any oil leakage drips clear away, thus further reducing the fire risks and preventing deterioration of ignition wiring. The carburetors are fed from a gravity tank, thus making it possible to run without pumps; the gas lines are shortened and the controls are simplified.

The necessary head of water can be obtained by placing the tank on the engine bearers, in a position affording a solid support. Visibility is appreciably increased and machine guns can be brought nearer the propeller hub, thus obtaining better synchronization. With the cylinder heads downward, valves and carburetors can be examined from below without the use of a ladder, and from above there is complete access to the crankshaft and connecting rods by removing an aluminum



Power and consumption curves of Farman Type 18 WI inverted engine

pan, without disturbing any essential part. The inverted position assures perfect lubrication of the valve stem guides, while details of the design make it impossible for an excess of oil to enter the cylinders.

The Farman 18 WI engine has three groups of six cylinders cast in Alpax metal and mounted on an aluminum crankcase with an angle of 40 deg. between them. Liners are pressed in, but each one projects into the crankcase about 4 in. These projecting cylinder barrels form an oil collecting chamber, into which the oil escaping from the main and the crankshaft bearings is directed by a series of baffles. It has been found possible to so completely prevent oil reaching the cylinder walls that if a certain amount of feed is not provided the pistons have a tendency to run dry.

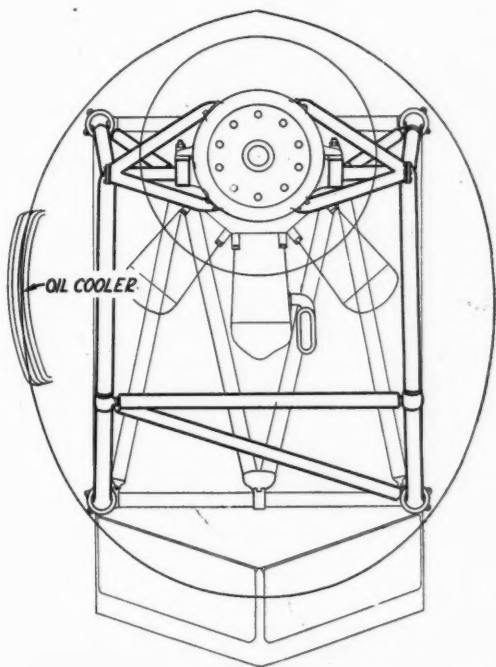
Cylinder Block Weighs 26½ lb.

Separate valve seats are used, but combustion takes place in a chamber formed by the Alpax metal and not against the walls of the cylinder liner. The weight of a block of six cylinders, with liners, completely machined, is 26½ lb. There are four valves per cylinder, slightly inclined from the vertical, seated by three concentric springs and operated by a single camshaft with 24 cams, with a rocker for each valve. Adjustment is on the valve stem.

The crankshaft is of big diameter and is carried in seven rather short, plain bearings, which are deeply recessed into the aluminum. Every effort has been made to give maximum rigidity to the crankcase by internal ribs between the cylinders and also by longitudinal ribs between the groups of cylinders. The main bearing caps are of die cast duralumin. The connecting rod assembly consists of a main rod, with a four bolt cap, and two auxiliary rods, all being I-section forgings. Pistons are aluminum alloy with a floating pin.

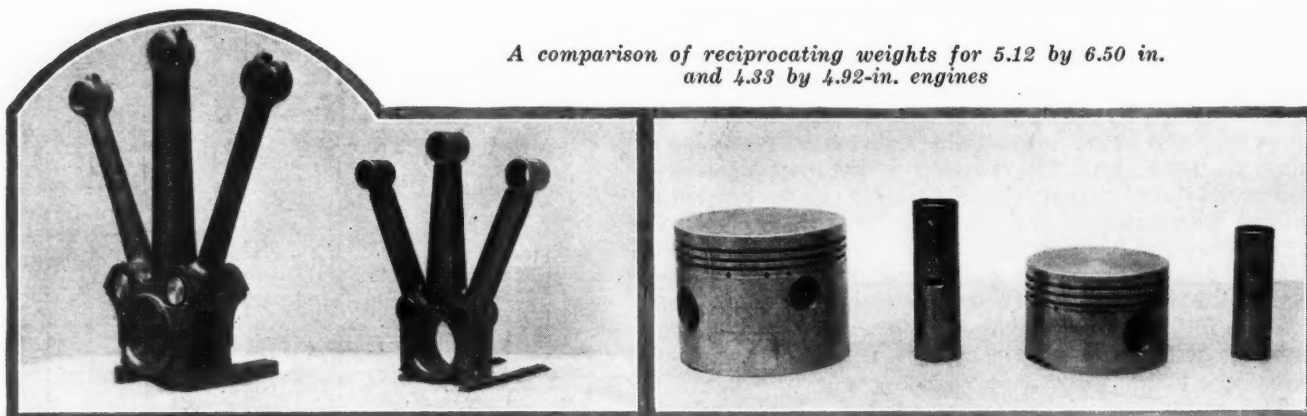
The drive from the crankshaft to the overhead camshafts is by a train of spur pinions, comprising two idlers, on the propeller end of the engine. In addition to providing greater security, compared with a shaft and bevel gearing, this arrangement offers the advantage of numerous points from which the drive of the accessories can be taken. Thus, the water pump is on the central group of cylinders and a distributor on each of the lateral groups. The gasoline pump and the oil pump are driven from the rear end of the camshafts.

Battery ignition has been preferred to magneto as being more reliable at high speeds and because of greater facilities in starting. Two distributors are



End view

A comparison of reciprocating weights for 5.12 by 6.50 in.
and 4.33 by 4.92-in. engines



15.89 lb.

6.7 lb.

2.28 lb.

0.87 lb.

1.14 lb.

0.70 lb.

used, each one sending the current to 18 plugs. While various types of starting mechanism have been used on previous Farman engines the present model is equipped with an electric starting motor weighing complete only 6.6 lb. The reduction between starting motor and engine is about 1 to 200, the motor being capable of turning the propeller at 60 r.p.m., which is equivalent to 150 r.p.m. of the crankshaft. Between the electric motor and the ring gear bolted to the crankshaft there is a patented torque limiting device to protect the motor in case of a backfire or a cold, stiff engine. It is stated that the battery necessary for heating, lighting, etc., is sufficient to assure starting the engine 300 times without recharging. This battery weighs 62 lb. and consists of 12 cells capable of furnishing 50 amperes for 10 minutes. In accordance with French Government Aerial Navigation requirements. Two electric generators delivering 300 watts at 24 volts are provided and weigh 11 lb.

Two carburetors are fitted, one providing mixture to the nine rear cylinders, the other to the nine forward cylinders. Experiments have been carried out with a Rateau supercharger geared up in relation to the engine with a ratio of 1 to 7. A single disk clutch assures

connection between supercharger and engine and is first brought into engagement by a very light spring; as speed is increased centrifugal weights on the clutch assure a positive drive. Experiments made up to the present show that the supercharger is capable of restoring the ground level horsepower at an altitude of 18,000 feet.

Propeller Drive Described

As on earlier Farman engines, the propeller is driven through a planetary reducing gear, but whereas the other engines had a ratio of 1 to 2, the new type has a ratio of 1 to 2.46, this reduction being obtained by inclining the arms of the satellites, in order to vary the number of teeth between the fixed pinion and the driven member, the greater number of teeth in this case being on the fixed ring. The weight of the standard reducing gear, together with all its assembly bolts, transmitting 700 hp. at 3400 r.p.m. is only 88 lb.

The oil circulation, as will be seen from the diagram, is under pressure to the seven main bearings, to the main connecting rods and to the auxiliary rods. By reason of the projection of the cylinder barrels into the crankcase, the oil from the main and connecting rod

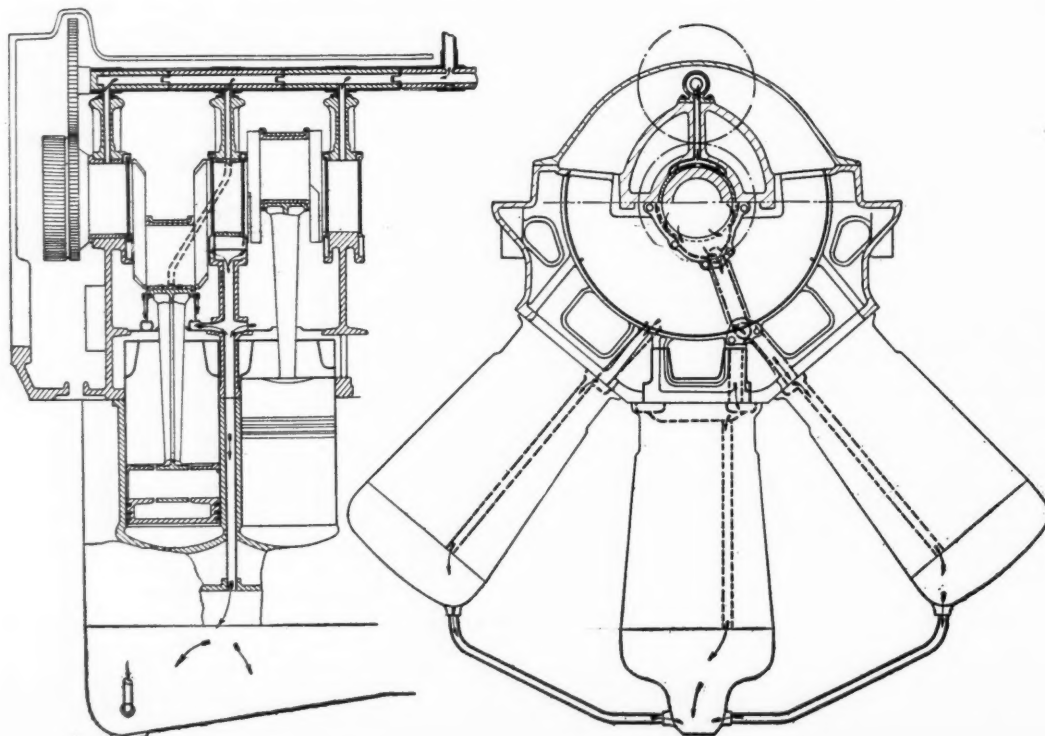
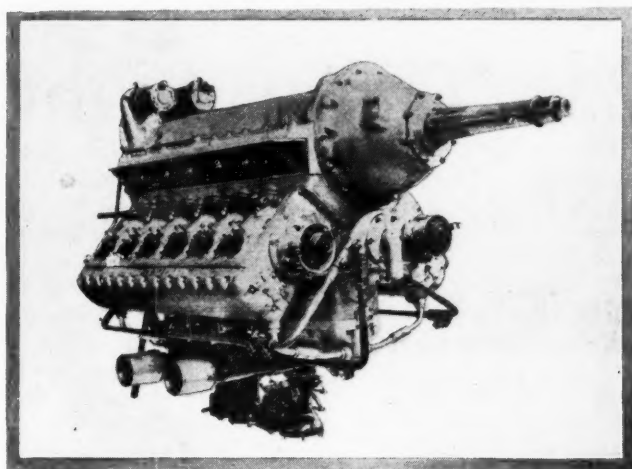


Diagram of lubricating
system for Farman in-
verted 18-cylinder air-
craft engine



Farman 18-cylinder 550-700 hp. aircraft engine

bearings is collected around the base of the central group of cylinders, from which chamber it is returned to the tank by the scavenging pump. At each end of the cylinder blocks there is a flow of oil, by gravity, to the aluminum housings enclosing the valve gear. As the central block of cylinders is lower than the two lateral rows, the central camshaft housing forms the general collector into which the lateral blocks drain, and from this point the oil is aspirated to the tank. A patented feature of the oil pump allows the area and weight of the pump to be cut in two by making two pinions fulfill three functions; two suctions and one pressure delivery. Thus a single pump housing containing three pinions makes it possible to realize the five

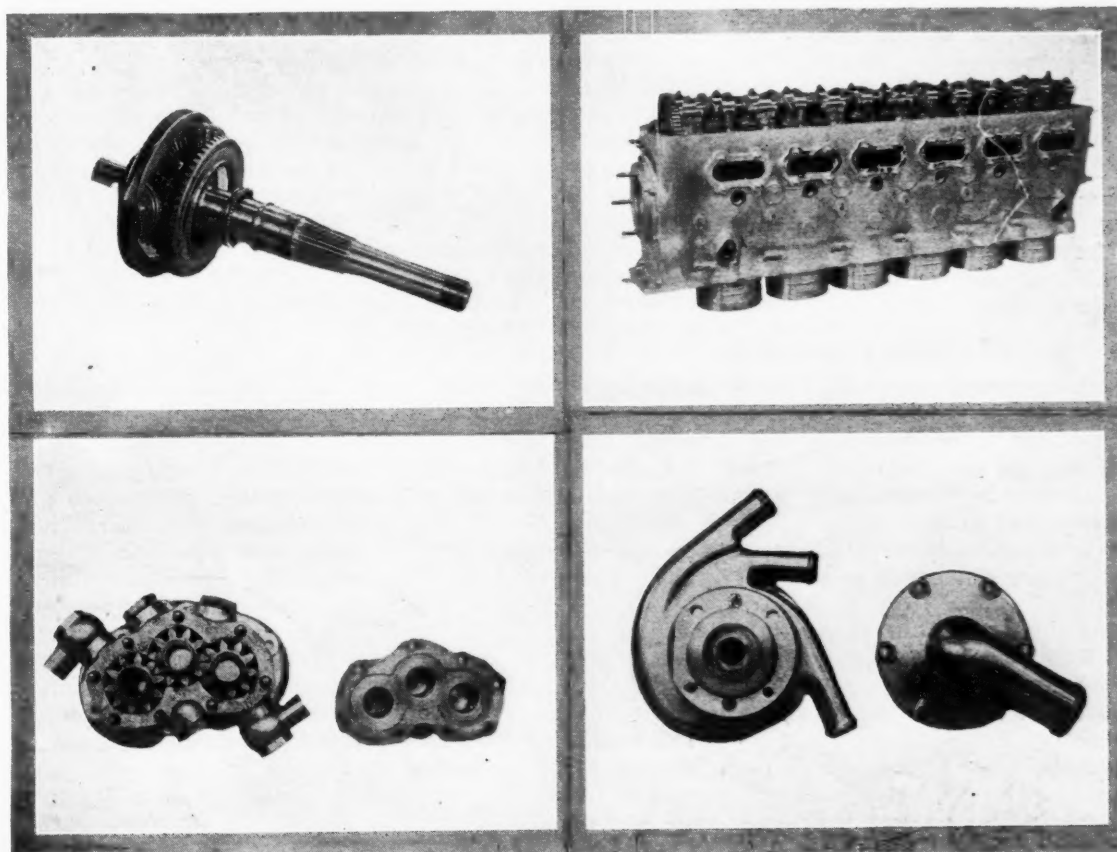
following operations: suction front, suction rear, return to tank, suction from tank, delivery to engine.

A single centrifugal water pump is employed for the 18 cylinders. It has one inlet and three outlets, each one going to a row of cylinders. The water pipes have five branches into the cylinder heads and six outlets from the base of the cylinder water jackets.

According to figures issued by the French Government Aviation Technical Service, the weight of the engine is 701 lbs., this being without reducing gear, propeller hub, water, oil, gasoline pumps or starter, but including heated intake manifold, distributors, plugs, wiring, oil pumps, filters and oil lines, water pump and piping, and revolution counter driving mechanism. The extras total 229 lb., thus giving a total weight of 929 lb. The details of these extras are as follows: Reducing gear, 88 lb.; electric starter and coupling, 16.5 lb.; propeller hub, complete with bolts, 27.5 lb.; electric generator, 14.3 lb.; second electric generator, 12 lb.; double battery for ignition, 14.3 lb.; double gasoline pumps and connections, 12.8 lb.; extra weight of battery for ignition, starting, and other electrical requirements (replacing ignition battery only) 43 lb.

Having completed its tests in the Farman shops, the new engine is about to be submitted to the official French Government 50-hour bench tests.

HERETOFORE one of the rules of the road in France has been that drivers on national roads had the right of way over drivers on local roads. This has now been changed by an amendment to the *Code de la Route*. Hereafter drivers when approaching road intersections and road crossings must give the right of way to any driver approaching from their right.



Some details of the Farman engine: Upper left, speed reducing gear. Upper right, cylinder block. Lower left, oil pump with cover removed. Lower right, triple outlet water pump

Taxicab Sales Results Throw Light on Insurance and Accidents

Compulsory insurance of drivers in New York seems to have contributed to some accident increase. Finance companies are hard hit by repossessions.

By J. C. Gourlie

IN New York, formerly by all odds the largest taxicab market in the world, hardly a new cab is being sold.

With one or two exceptions, every finance company exclusively engaged in handling taxicab paper in New York has failed.

Seven out of 15 insurance companies underwriting personal liability for taxicab operators under the compulsory state law in New York have failed.

New York courts are clogged with about 15,000 suits arising out of taxicab accidents and difficulties are arising in the working out of the compulsory insurance law.

All of which must mean something to the automobile business, bearing as it does on the sale of cars and cabs, on traffic congestion, on the accident rate, on insurance rates and on the question of compulsory liability insurance.

In New York last year there were about 20,000 taxicabs in operation within the municipal limits. There are only estimates of the number in operation nationally, but the total is probably at least 80,000. So if 25 per cent of the cabs in the country are in New York City, obviously there would be an enormously expanded market if taxicab transportation were developed in other cities on a scale comparable to that of the metropolis.

Too Low Rates Undesirable

That such a development would be desirable from the viewpoint of the industry as a whole is quite unlikely. The low rates that have accompanied the growth of the taxicab business in New York have made it undesirable economically for many persons of moderate means in the city to own cars. And the increased traffic congestion through taxicab operation has certainly not added to the pleasures of motoring.

To debate the question of whether the terrific congestion in New York is the result of the large number of taxicabs in operation in the city, or whether it was the congestion that led to the expanded operation of cabs is to reopen the argument about the chicken and the egg. But the essential point is that, in view of recent developments, there seems little likelihood of other cities acquiring anywhere near as large a proportion of taxicabs to population as has New York.

In that city the lowering of rates undoubtedly contributed heavily to the increased number of cabs in operation. When rates first began to be lowered the

increased volume of business more than compensated for the lower average fare, the operators prospered and more and more cabs were rushed into service. Business then became hard to get and a rate war ensued which resulted in the scale now held to by a large majority of the operators—15 cents for the first quarter-mile and 5 cents for ensuing quarter-miles.

Profitable Operation Necessary

At this level, there is every reason to believe, profitable operation, with due allowance for maintenance and depreciation, is impossible. There is now only one company-owned fleet of any consequence in the city. Many individual operators are banded together in associations for the use of a name and central telephone stations. Most of the owners are not making money, but they can get by better and longer than companies owning fleets.

Even when fleet ownership was prevalent in the city, the manufacturers and finance companies had plenty of troubles. Some owners would buy cabs on a low down payment, and then operate them in two or three shifts daily. Earnings would pile up rapidly for a time, and then the owner would face a big repair bill and his instalments would be overdue. Repossessions naturally ensued.

Individual ownership and unprofitable rates brought all sorts of evils. Financially weak the drivers were unable or unwilling to make the \$900 down payment that would be about the minimum of safety on a taxicab instalment sale. Competition among sellers and their financing companies lowered down payments to as little as \$350. The income from operation was not sufficient to make continuance of payments attractive to the owner, and in a very few months there was almost inevitably a repossession of a cab badly in need of reconditioning. Hence the failures of the finance companies, despite high financing charges.

These conditions brought a glut of used taxicabs, and it is said that for \$1,000 cash a fleet of ten cabs capable of fairly good operation can now be acquired.

Even more important was the necessity which the operators have faced of working for long hours, 12 to 16 a day or even more, in order to gain any sort of temporarily decent living. This added to congestion and to the opportunity for accidents. The rate was not slow to rise.

Compulsory liability insurance also probably contributed to the increase in accidents. The drivers, tired and irritable from long hours of struggle with

the traffic and protected by their policies, inevitably tend to be more lax about running into other vehicles and hitting pedestrians.

The figure of 15,000 taxicab accident cases in the city courts, already quoted, is given on the authority of Charles E. Clapham, manager of the New York Public Automobile Accident Prevention and Statistical Bureau. He estimates further that there are about four accidents per year per cab and that the average judgments paid by the insurance companies are \$250 per year per cab, against premiums of \$360. Hence the failures in the underwriting field.

The congestion in the courts that has resulted from the excessive accident rate has seemingly been the only reason why more of the underwriters have not gone out of business. There are 18 months to two years' delay in bringing suits to trial in the municipal courts and on appeal to the Supreme Court the underwriter can delay settlement as much as five years.

Minor cases, therefore, often are allowed to lapse and more important ones can be settled out of court at very small sums. This obviously is not the intension of compulsory insurance but it is the way it is working out. The protection actually accorded the victim of palpably negligent driving, who is seriously injured, is more than insufficient.

Provisions of Insurance Law

The law provides for maximum coverage of \$2,500 for injury to one person, and \$5,000 for personal injuries in any one accident. There is thus, on the surface at least, a good deal of inducement for the bringing of suit in the event of an accident. The kind of shyster lawyers known as "ambulance chasers," have not been asleep to their opportunities and cases of any consequence as well as many of no importance whatever seldom fail to be brought to court.

The provisions of the law add unnecessarily to the burdens of the insurance companies, according to the underwriters. There was no provision made for cooperation between owners and operators on the one hand and the insurance companies on the other. A driver frequently fails to report an accident and the underwriter knows nothing of it until a summons is served. Then the driver may have disappeared.

The underwriter has to go into court without preparation and sometimes without even a witness, if the driver cannot be located. In this event counsel has to depend upon cross-examination of the plaintiff's witnesses. The insurance company, anyway, is at a disadvantage when it goes to court. Juries are notoriously hard on a corporation even in cases where, on the basis of the evidence, they might be lenient if the judgment would fall merely on a taxi driver.

In the circumstances there is

sometimes even the impossibility of detecting downright fraud. A wholly fictitious suit may be worked up.

Revised Legislation Wanted

Seeking a way out of the chaos, the insurance companies want the law improved, and insurance rates raised, but above all they see the only solution in a higher rate of taxicab fares. At this point they are one with the big associations of drivers.

Said Ernest H. Miller, president Yellow Taxi Corporation, before the Greater City Taxi Owners Association, Inc., June 22:

"Various forms of the transportation system of New York have each in turn gone through chaos, but it has been left to the taxicab industry to get itself deepest into the mire. Little does the cab rider think what a too cheap ride costs. In the accumulated results, he reaps a result which, when realized, is appalling. This is what he buys: An accumulation of accidents to the fact that men must drive too fast to make a living; the physical destruction of the man who drives him; possible injury to himself as a pedestrian, and at the same time is laying for himself the groundwork for several rides in the world's worst hacks—for who can afford to buy new cars tomorrow or next year if he cannot sufficiently depreciate today's car cost?

"All this demoralization must now lead to thinking in constructive terms. How can the cab owners keep their cabs efficient and clean and at least make a small profit? Who is going to point the way? Similar conditions have existed in other industries. Recently the newspapers had statements to the effect that the Czar in the taxicab business was a possibility, and when I have been asked what my point of view was on that question I could only reply that anything that was good for the taxicab business I was for, and if the public would benefit by anything that was done to correct abuses, then I was for such a plan."

How a Czar could legally force rates upward is not explained. And mere persuasion has been tried in the past.

Undoubtedly in time, as the present cabs wear out and funds are lacking for replacement, the situation will tend to right itself, temporarily at least. If higher rates are then firmly established, there will be less need for cabs.

It seems, therefore, that the expansion of taxicab transportation in New York has been to a considerable extent an uneconomic growth. The advantages to a section of the public are almost certain to be only temporary and the disadvantages are such that other cities are likely to prove reluctant to follow the example of New York.



Semi-Annular Grooves in Bearings Urged as Lubrication Aid

High pressure in oil required when bearings are lubricated through radial hole in journal and outlet of hole registers with bearing groove for only small fraction of revolution.

By H. L. Newton *

Manufacturers' Service Division, Vacuum Oil Co.

MANUFACTURERS of all classes of engine-driven equipment must render some assistance to their customers calculated to insure the continued efficiency of the equipment. A well-pleased customer is a decided asset to a manufacturer or distributor and future business depends, to a large extent, upon his attitude toward the article in his possession and the manner in which service has been rendered in his behalf.

This desirable attitude of the public cannot be developed fully by the mere mechanical act of replacing, refitting or adjusting of parts. Automotive users are human and will form their own opinions, even if these opinions or ideas are not entirely correct. The methods utilized in molding these opinions constitute just as important a part of efficient service as the purely mechanical assistance rendered.

A Little Knowledge

The intention of most car owners is good. They mean to drive and care for the unit as they would care for any other of their possessions, but unfortunately their knowledge of design—their understanding of the mechanism—is seldom on a par with the information they have acquired along other lines.

When a customer calls on a manufacturer, or any of the manufacturer's distributors or agents, with grief to air, it is commonly listed as a complaint. Most of these complaints are the result of inexperience, or careless operation (or handling) of the product. The time and attention given to such complaints is preventable free service.

Our company receives many complaints in the course of a year. Lubrication often fails, at least according to the ideas of the customer, and as long as he has this idea it is unimportant for the moment whether the failure is

real or fancied. The procedure followed with the general run of complaints entails work which frequently interlocks with your work along service or maintenance lines. Most of our complaints, I would say, are the result of dilution—customers complaining of "oil breaking down," "oil thinning out," excessive consumption, loss of oil pressure, etc. Then we have water accumulation in the crankcase from condensation, causing freezing complaints in the winter; also sludging and clogging of oil screens and oil ducts, and emulsions, or thickening of the oil, in various forms. Complaints come in of burned bearings and cylinder wall wear; also of "corrosion," which has caused a great deal of grief in the last few years, and the cure of which is sometimes difficult to effect.

We find that "oil pressure" complaints, which belong to the family of "lubrication failure" complaints, are the cause of a great deal of time-consuming, preventable free service.

A customer will enter a service station and complain that his oil pressure has dropped from 40 to 15 lb. He is accustomed to a slight drop when, after starting, his oil becomes warmed or when a certain amount of dilution has somewhat thinned the oil, but the extra pressure drop has alarmed him.

The service man's time is taken up in explaining that the oil is heated and slightly diluted, and that he has driven his car 1200 miles since its purchase, hence the

originally-close-fitting bearings have about seated themselves, allowing the oil under pressure to flow through them a trifle more freely than heretofore. All these conditions combined contribute to a more copious flow through the bearings and cause the pressure gage in turn to show a lower reading—due to the reduced restriction.

A pressure feed system can be compared to the plumbing lines in an apartment house.

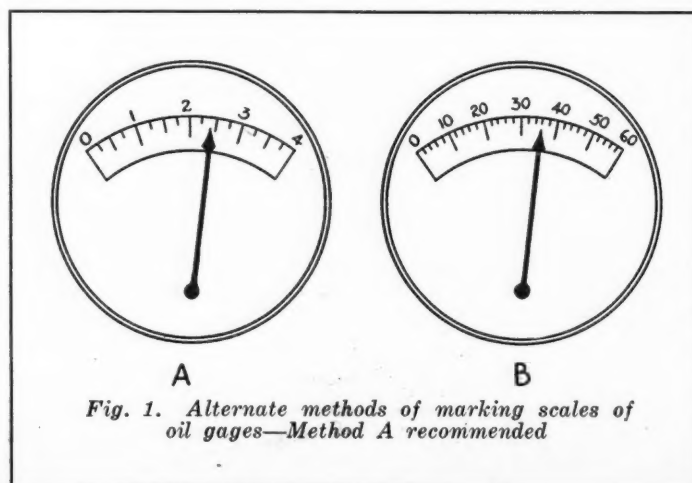


Fig. 1. Alternate methods of marking scales of oil gages—Method A recommended

* Presented before the Factory Service Managers' Forum of the National Automobile Chamber of Commerce, Cleveland, June 15, 1927.

Attach a gage to the house inlet line and the reading will be equal to the normal city pressure. Turn on the faucets in every room in the building and the gage pressure will be materially reduced. In other words, the pressure in the line drops as a result of relief at the outlets.

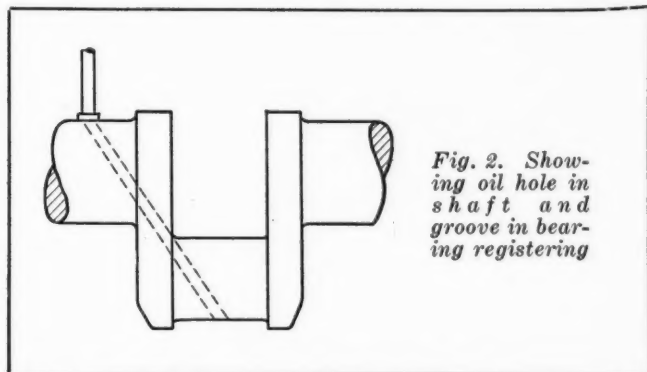


Fig. 2. Showing oil hole in shaft and groove in bearing registering

The service man probably assuaged the fears of the customer. If he was an unscrupulous outside garage man, he may have advised a heavier oil or "set up" on the by-pass adjustment—poor remedies that will cause trouble.

In any event, time was consumed; time that accomplishes nothing toward the creation of that well-pleased-customer feeling toward which all real service is directed.

Dilution of crankcase oil is a big problem today; yes, but the limiting of the fuel content in an engine crankcase is a problem to be solved at the factory, by incorporating in the car some device or means to limit the accumulation, to prevent its reaching the danger point, and not to saddle onto the service department the job of educating individually each customer to the vagaries of the oil gage.

Irrespective of what devices or designs may be developed, we will always have the dilution problem with us, at least to some extent—the character of present-day fuel indicates that. We will always have some fuel in the oil, in quantities which will do no harm, but the oil gage should not be utilized as the tell-tale. It unnecessarily alarms the car owner and makes unnecessary work for the service people.

Would it not be better, irrespective of the actual oil pressure employed in the engine, to graduate the gage as shown at A, Fig. 1, rather than as shown at B in the same figure?

Function of Gages

After all, the gage serves simply to indicate that the oil pump is functioning and to give as an alarm in case of a rupture in an oil line or a completely clogged oil screen.

An automobile owner cannot be expected to differentiate between *volume* of oil passing through the bearings, and *pressure*. Oil pumps are designed to deliver more oil than can pass through the bearings, and the by-pass is employed to carry off the surplus and is set to maintain a pre-determined pressure in the line. If the *volume* passing through the bearings is increased, due to any of the reasons mentioned, the by-pass will be relieved of its surplus-discharging duty and the gage will drop. It would be preferable, if it could be done, to measure the volume of oil passing through each bearing, rather than to indicate the resistance of the bearing to the flow of oil.

If the oil lines to each bearing were to be suddenly plugged up, the gage would show the highest possible

reading—an ideal situation according to the car owner's reasoning.

The point is that the method of graduating the gage has considerable effect on the car owner and upon service people's time. Frankly, its influence on service is greater than it appears, and many can testify to this effect.

It may be well to review briefly the factors governing oil pressure requirements in an engine; the pressures which affect the movement of the needle but have nothing to do with the graduations. I suggest this because the oil pressure question is a substantial factor in service work in general.

The oil pressure best suited to any particular system is governed principally by the length of the groove in the main bearing with which the outlet hole in the journal registers. With a design like A, Fig. 3, the oil channel in the crankshaft communicates continuously with the oil supply from the pump, and oil flows uninterruptedly to the crankpins. I can call to mind several cars in the high-priced class that were driven in the 500-mile race at Indianapolis with grooves of this form, in which the oil pressure was only 2-3 lb. p. sq. in. At the other extreme, C represents an approach to a "spot pick-up." In the case of such a design the factor of oil inertia enters to a large extent, and a very high oil pressure must be used to overcome it.

Peripheral Grooves

Cars with the latter arrangement, with a peripheral groove in the main bearing 1 in. long, have been observed in tests on the Indianapolis Speedway, and a pressure of 65 lb. p. sq. in. was required to provide a crank spray sufficient to lubricate the cylinder walls.

Pressure, in itself, is not a determining factor in bearing or cylinder wall lubrication, but volume is.

A low pressure, with groove extending entirely or even halfway around the bearing will produce just as much volume through the bearings and on to the cylinder walls as a high pressure with a short groove.

Piston clearances, number and type of rings, the use

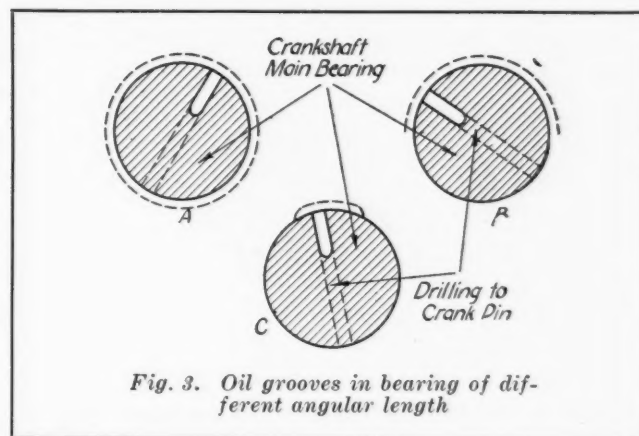
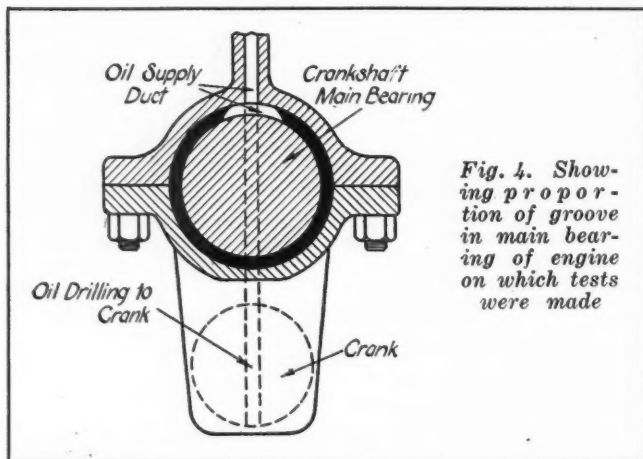


Fig. 3. Oil grooves in bearing of different angular length

of oil return holes, the height of the cylinder cavities from the crankshaft and their diameter, engine speed and engine load may affect the amount of oil that it is necessary to spray from the whirling cranks, or the amount that can be thrown off without developing oil pumping troubles, but the pressure necessary to provide this pre-determined volume is governed principally by the length of the registering groove.

An interesting experiment was carried out recently at the laboratory of an Eastern engine manufacturer (Fig 6.) A crankshaft was mounted in the crankcase, the necessary oil connections were made and the shaft

revolved at 2800 r.p.m. Oil was fed from an outside source under steadily increasing pressure and the spray from the open cranks (without connecting rods) was noted. A pressure of 23 lb. p. sq. in. was reached before there was a really noticeable spray from the whirling crankpins. Also, with a constant oil pressure of 10 lb., at a speed of 1000 r.p.m., the oil spray from the cranks began to diminish, until at 2300 r.p.m. it was reduced



practically to nil. Only a small amount, seeping from the main bearings and thrown by the crank arms was noticeable—not enough for adequate cylinder wall lubrication.

Some engines employ a throttle-controlled by-pass to overcome this latter condition. The spring pressure on the by-pass is raised or lowered as the throttle is opened or closed. This device varies the volume of lubricant circulated in accordance with the r.p.m. and load, a very desirable arrangement, but changes in oil viscosity can very easily upset the relationship.

A very short groove with its attendant high pressure, is inclined to be very sensitive to changes in oil viscosity. Thinning due to heat, or dilution, or both, or thickened as a result of mulsification, will materially affect the amount of lubricant available to form an adequate film, and excessive wear over a period of time, if not actual disaster, will result.

An engine operates on a spoonful of lubricant at a time, the amount represented by the total film between the wearing surfaces. The efficiency of this oil film depends more upon the condition of the oil than upon what the operator may do as a result of his analysis of his pressure problems.

Owners Need Education

One remedy lies in the further education of the car owner, to impress upon him the responsibility he must share. It does not mean more work for him, but rather the acquiring of knowledge of existing conditions.

The only mechanical difference between a worn-out car and a new one is in the fit of the various parts, and if he can be educated to the importance of intelligent care of the inside of the automobile—if his mental picture of conditions within can be raised to the level of his pride for appearances without—free service will be practically eliminated.

Engine speeds are and have been increasing yearly. Somewhat more liberal lubrication is required at the higher speeds and loads. With a short groove the quantity decreases as r.p.m. increases, unless the throttle-controlled by-pass, already mentioned, is employed; but why restrict an aperture and then raise pressure to produce the required volume?

We do not advocate annular grooves as the only solution. In many engine bearing designs this arrangement is not feasible, but an intermediate course may be adopted, which will give adequate results. The short groove was originally adapted to eliminate oil pumping troubles, but the attendant high pressure has been provocative of other and more serious lubrication difficulties.

Engines vary greatly in their lubrication requirements; these can be definitely determined only by experimental work and field tests, and from a knowledge of results obtained with engines in service. The pressure in the oil line should be set low, say at 5 to 10 lb. for moderate service, and the length of groove required to insure an adequate supply of oil should be determined experimentally.

Experience in the field has been that a groove extending half-way around, in either the upper or lower half of the bearing, depending on the location of the oil supply, is satisfactory with moderate pressure. It affords the oil ample opportunity to flow and it does not materially reduce the efficiency of the bearing area, particularly if it is located in the upper half of the bearing, where the load is a minimum. Such a design is well adapted to automobile and truck engines.

Man and the Automobile

WRITING recently in Bulletin No. 43 of the Connecticut State Department of Motor Vehicles, Robbins B. Stoeckel, commissioner, says:

"It has long been tacitly recognized, although not so often stated, that when a man gets an automobile for himself he acquires a perfect means for the expression of his character. Everyone is bound to admit that no transportation medium of the past has ever had anywhere near the capabilities for use and *misuse* that the motor car now offers, and the judgment of a man by others, as to whether he is a good or bad operator, will always be based upon how he expresses himself by the use of his car. Character as used in this connection must not be confused with morality. Rather, the word includes, besides common attributes, all those individualities and idiosyncracies which, while not always reprehensible in themselves, make their possessor enough different from other men in reaction to take him out of the average and place him in the class of the potentially unsuccessful or unsafe.

"This average of performance is fortunately high. There is only a minimum of people who are bad. According to statistics about 85% of all operators have those qualities which make them desirable, while out of the 15% remaining the whole gamut from a slight tendency towards absentmindedness to actual criminality is run.

"The safety and transportation problem is to make more people attain the average. The means used to secure that end are education, discipline and general character building.

"All this is readily apparent to any thoughtful reader but what is not so plain, but nevertheless worthy of note, is what driving an automobile does to a man.

"No person can successfully operate an automobile without correct reactions to the various situations in which he is bound to find himself. These are primarily mental but followed by the correct physical application to accomplish the indicated result they must be correct or safety is sacrificed."

Byrd's Flight Adds Laurels to Fokker and Wright



THE three-engined Fokker monoplane in which Commander Byrd and his three companions succeeded in the fourth attempt this year to span the distance between the mainlands of Europe and America in a non-stop flight, although they were forced to land in the sea just off the coast of France by weather conditions, is a larger copy of similar planes which have already performed splendid service in pioneering and commercial work.

Of the same construction as Byrd's ship America, was the plane which turned in a perfect score in the 1925 commercial airplane reliability tour and which was later used by Commander Byrd for his successful flight across the North Pole.

A similar plane was used by the Wilkins-Detroit expedition in Alaska in 1926 and during that year three planes of this type were operated in a regular passenger carrying service between Philadelphia and Washington.

The latest feat of a Fokker monoplane, performed just prior to Byrd's flight, was the successful spanning of the distance between the United States and Hawaii by Lieuts. Maitland and Hegenberger of the U. S. Army.

All of these planes were similar in construction to the America with framework of welded steel tubing covered with fabric and powered with three Wright Whirlwind J, radial, air-cooled engines—this being the same type engine which carried both Lindbergh and Chamberlin on their successful trans-Atlantic flights.

At the take-off the America weighed about 14,300 lb., including the four members of the crew with their equipment. About 7400 lb. of gasoline were carried, some 1250 gal.; 800 gal. in a tank suspended from the wing beams of the fuselage while the remainder was carried in five other tanks of from 85 to 100 gal. capacity, four of them being located in the wing.

About 60 gal. of oil were carried weighing 480 lb.



Commander Byrd is pointing to the Fokker plane America which carried the four men shown in the insert safely across the Atlantic. From left to right the members of the crew are Bert Acosta, Commander Byrd, Lieut. Noville and Lieut. Balchen.



while radio equipment, food and water, life rafts, and other equipment brought up the total weight to nearly 15,000 lb. although the plane weighs empty only 5940 lb.

The nacelles are connected with the fuselage by a cat walk so that the two outboard engines may be inspected by the crew while in flight. The large gasoline tank splits the fuselage into two sections and the forward section is fitted with dual control mechanisms. The gasoline tanks are fitted with dump valves by means of which the tanks can be emptied of their contents very rapidly so that they will provide bouyancy in case the plane should be brought down during the flight.

General dimensions of the America are as follows:

Wing span	71 ft.
Overall length	48 ft.
Overall height	12½ ft.
Wing area	735 ft.
Total horsepower	660

Accompanying Commander Byrd on the trans-Atlantic flight were three exceptionally competent flyers and navigators instead of only two as were originally planned. The pilots were Bert Acosta, who is considered one of the most capable pilots in the world, and Lieut. George O. Noville, who accompanied Byrd in the flight over the polar regions. The radio was operated by Noville and Lieut. Bernt Balchen who also can pinch hit in any of the other jobs, since he is said to be able to do anything with and about an airplane except build one with his hands. Commander Byrd acted as chief navigator.

Although the plane finally landed in the sea off the coast of France, nothing but the very bad weather conditions prevented it from arriving at its objective, since, in its aimless wanderings over France while dense fog made any landing most hazardous, it traveled far enough to take it to Le Bourget or most any other French flying field.

Correct Moment for Quenching Tool Steel

A BRITISH concern, Automatic & Electric Furnaces, Ltd., manufacturing hardening furnaces in which the loss of magnetic properties at or near the decalescent point is made use of to determine when to quench the steel. There has been some question as to whether the point where the steel becomes practically non-magnetic is the right quenching point.

To show the relation of the point of complete loss of magnetic properties to the proper point for quenching, some experiments were conducted by A. R. Page on samples of carbon tool steel containing 1.10 per cent of carbon and 0.25 per cent of manganese in a Wild-Barfield electric hardening furnace fitted with a magnetic indicator.

Three pieces of steel, A, B and C were used, ¾ in. in diameter by 5 in. long, each having a hole drilled down its center for half length. Thermo-couples were inserted in samples A and C, so that the heating curve of the steel could be determined. Readings were taken at half minute intervals of the temperature of the two specimens, of the furnace (by means of an additional thermo-couple) and of the magnetic indicator. These readings were then plotted against time, and the resulting curves are reproduced here-with.

It will be seen, first of all, that specimen A begins to absorb heat at point T (the beginning of the Ac point) after 4½ min., while specimen B begins to lose its magnetism at point M, also after 4½ min. The magnetic curve dropped until at point Y, after 9 min., the specimen has lost all its magnetism. On the other hand, the heating curve for specimen A shows that thermal absorption was complete at X, that is, after only 7½ min., corresponding to a temperature of 745 deg. C. The period of the thermal arrest is shown by the horizontal distance T-X during which time the specimen did not increase in temperature owing to the absorption of heat.

The question now arises, which

is the correct point at which to quench the steel; at a point corresponding to X, the end of the thermal arrest (i. e., after 7½ min.) or at a point corresponding to Y, the end of the magnetic change (i. e., after 9 min.)?

In order that the effect of quenching at the different points could be determined, specimen A was quenched as soon as the thermal arrest was complete, at X, while specimens B and C were quenched at points corresponding, to Y and Z, when the magnetic change was complete. The specimens were then broken and the fractures examined, sections were cut and examined microscopically, and hardness determinations were made. The results of the hardness measurements were as follows:

Specimen	Ball hardness	Rockwell hardness
A	661	66
B	694	66½
C	694	67½

Mr. Page concludes from the results of these experiments that the correct point at which to quench the steel is the point at which it becomes non-magnetic, and not at the point where the thermal arrest is complete.

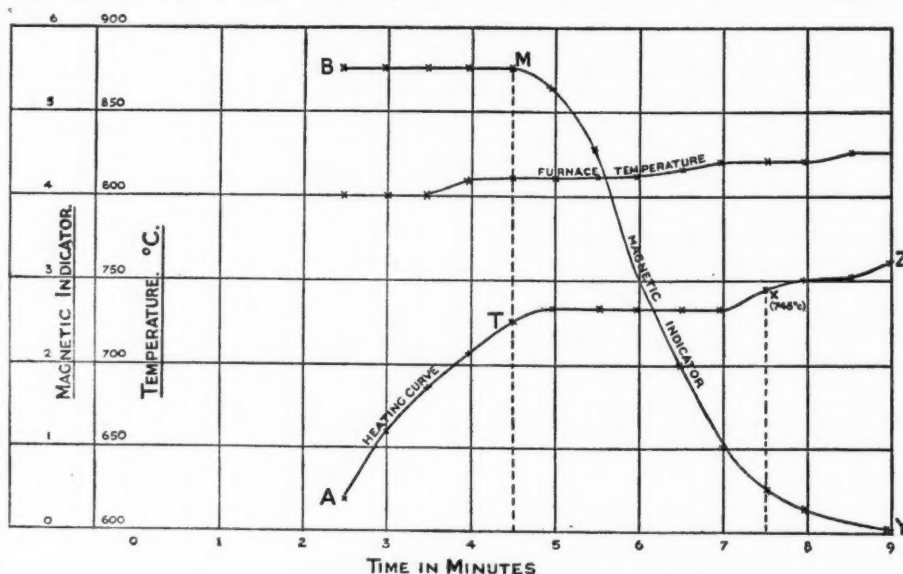


Chart showing temperature and magnetic variations of specimen in relation to time

Just Among Ourselves

Car Dealers Need Accessories for More Profit

THE number of car dealers handling accessories has increased materially in the last few years. More and more retailers have seen the possibility—or the necessity as some would have it—of leveling out low spots in the profit curve by actively merchandising various lines of equipment to go on the vehicles which they and their fellow dealers are selling. The trend in this direction seems bound to continue. And its continuance seems equally bound to be a benefit rather than a detriment to the car manufacturers. Stable, profit-making dealers are essential to the continued success of the car builder and active handling of accessory and equipment lines help to build such dealers.

* * *

Moock Outlines Interesting Platform

THERE is much food for thought in the statements along these lines by a former factory sales executive reprinted on other pages of this issue. Harry Moock, as part of his new activities as managing director of the Automotive Equipment Association Greater Marketing Development campaign, has propounded his views of profit-making possibilities for the car dealer with characteristic vigor and directness. There will be those among car factory executives who will feel that he has slightly over emphasized the lack of possibility for profit from car sales alone, even though his statement of facts about the present situation as regards the average dealer be entirely proved. So

long as a high proportion of a dealer's capital investment must be in new and used cars, it is necessary that every effort be made to have him realize a fair profit on those departments alone. But Moock's basic ideas probably will get support from a good proportion of executives, suggesting as he does that the car dealer be made an automotive merchant, that he be encouraged to handle accessories, that he be educated in how to merchandise them and that he be shown how to make parts and accessory sales get him more new and used car business.

* * *

Today and a Year Ago Today—

WHERE are the excitements of yesteryear? Ever sit back and take a look at the problems which everybody was talking twelve months or so ago and then get a quiet smile from noticing how many of those burning issues are still being battered about the luncheon tables of the industry? The afternoon being warm and our brain action even feebler than usual we got to reminiscing about the months of June and July last year—with the aid of a couple of file copies—and the results were interesting.

* * *

Some are Gone Some Still are Here

EUROPEAN light car talk seems to be past today—for the present at least. All of the smaller American cars which appeared were little closer than second-cousins to the small, narrow tread vehicles of Europe. The fact that Ford did cut prices about a year and a month ago has been almost forgotten

by the industry, swallowed up as it had been by the interest in the new Ford model expected almost any time now. Truck and bus legislation arguments are in abeyance for the moment, but will break out again before long. The parts makers are still discussing the same question. . . . There's always plenty of interesting things to think about in the automotive industries.

* * *

Light Cars, Regulation, Prices and Ford

ALONG about this time the industry's representatives had just completed a battle in Washington against some Senatorial attempts to put through a slice of truck and bus regulation which wouldn't have been so good from the standpoint of the truck builders particularly. Light cars were the topic of the day. The Whippet had just come out; the Erskine was still in the rumor stage as were several other light cars which never materialized—at least in any form which could be recognized under that name. Speculation was rife as to the effect of Ford's recent price cut and the parts makers were trying to figure out how they could continue to make money at constantly lower prices.

* * *

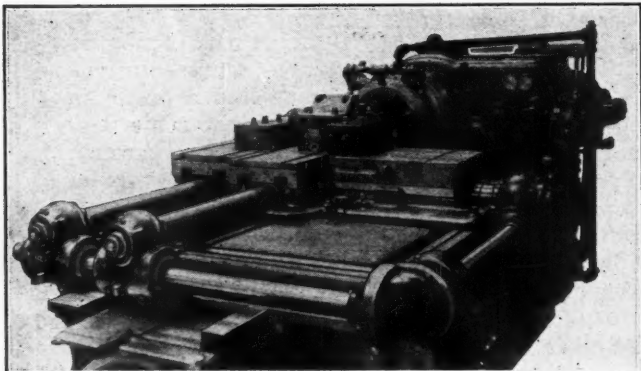
New Models on the Way; Most Changes Moderate

MIDYEAR new model season is under way and nearly every week for a while will see the announcement of at least one new car. Present indications are that 1927 will go down in the records as another year of consistent refinement of design, with radical changes in basic models confined to a very few instances.—N. G. S.

NEW DEVELOPMENTS—Production

Potter & Johnston Platen Type Automatic

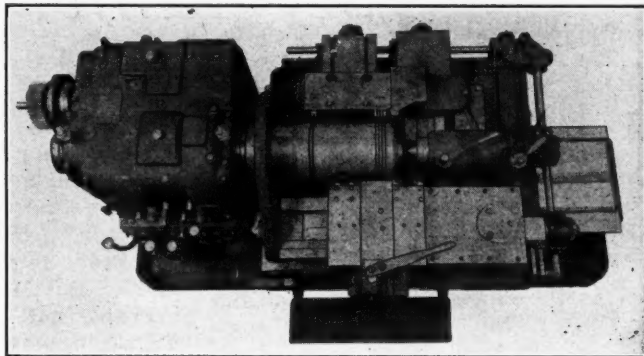
THE Potter & Johnston Machine Co. of Pawtucket, R. I., which has been manufacturing automatic machines for the manufacture of duplicate parts from forgings, castings and bar stock for over twenty-five years, has recently developed a new platen-type of automatic, the 6-DP, which is adapted to a wide range of chucking and "between centers" work and is capable of taking a number of cuts simultaneously. One man can operate several machines and the cost of production with it is claimed to be a minimum, considering all factors, including interest on investment, depreciation, tool upkeep, floor space, supervision and labor. It is said to be particularly adapted to work requiring heat treatment or an opportunity to cool between roughing and finishing operations.



View from tail end of machine, showing drive for platen and tool slides

The base is of heavy box construction, with heavy front and rear ways, and it is so designed as to allow plenty of chip clearance. The machines are furnished with a pan base, which serves as a reservoir when a cutting fluid is required. A metal grating prevents chips, etc., from dropping into the cutting compound.

The machine is of the multiple unit type, headstock, feed box and platen each being built as a unit. The spindle is a high carbon steel forging and is mounted



Top view showing machine tooled up for machining trunk piston

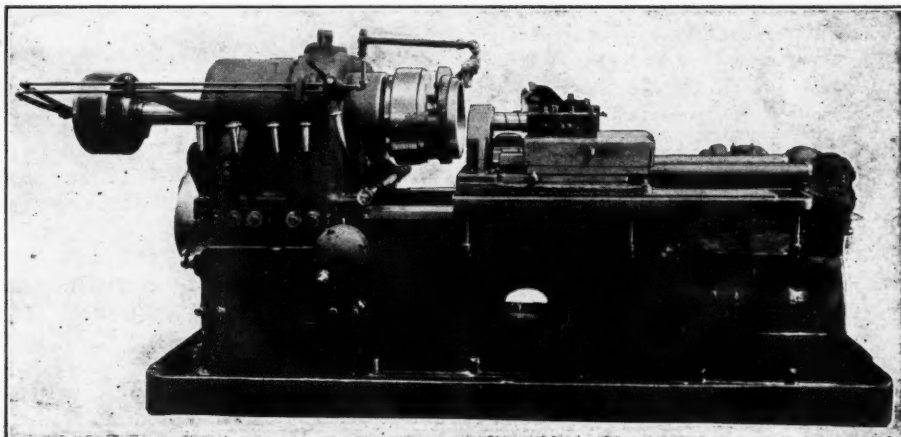
on taper roller bearings of large size, the front bearing having an outside diameter of $11\frac{3}{8}$ in. and the rear bearing of $8\frac{1}{2}$ in.

Four automatic changes of speed are provided regularly, and three of feed when required. These changes are entirely independent of the variations possible in the individual slide cams. The spindle gears are made of chrome nickel steel, heat-treated, and are cut with helical teeth. They run in a bath of oil. Bearings have flood lubrication. All shafts are of large diameter and made of chrome-nickel steel, heat-treated. The drive is through a constant speed pulley which is equipped with a multiple disk clutch and brake. Multiple disk clutches are also used in the head stock, to provide the automatic speed changes.

An automatic type of spindle stop is provided, which allows the cutting tools to return to their neutral position without unnecessarily scoring the work. The platen or table is of heavy construction and mounted on wide ways in front and rear. It is moved to and fro by means of a cam drum provided with hardened cams ground on the dwell. The motion of the platen, therefore, may be utilized for cutting as well as for bringing the tool slides into the operative position. The platen carries a removable plate on which may be fastened a sufficient number of tool slides to suit the particular work in hand.

For work between centers the machine is provided with a live center, mounted on roller bearings, which is bolted to the main platen. When work of this charac-

*Potter & Johnston
platen-type automatic,
front view*



Equipment, Parts and Accessories

ter is to be handled the platen is clamped to the bed of the machine and the longitudinal feed of the platen is eliminated.

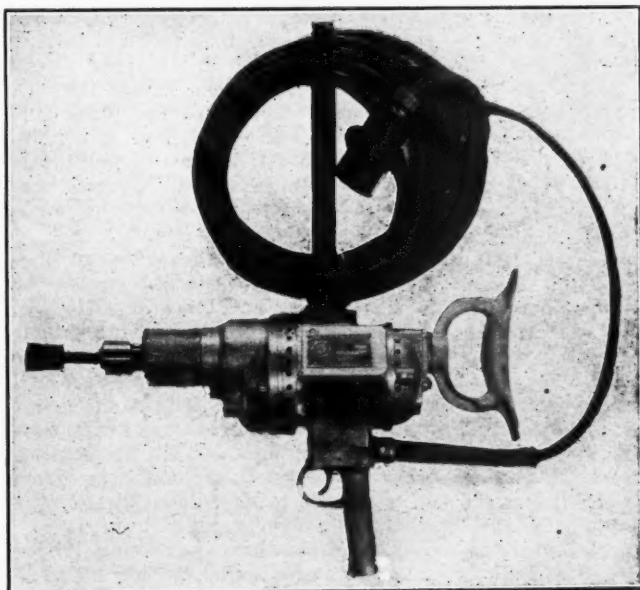
The standard tool slides furnished with this machine are of heavy construction, approximately 10 by 18 in., and are provided with three taper gibs, one to take side wear and two on the strap for lift. The entire feed mechanism for these slides runs in oil. The roll stud is mounted on ball bearings, and the camshaft is provided with a ball thrust of liberal dimensions.

Machines intended for work requiring a coolant are provided with an oil pump and piping. Three-jaw geared scroll chucks of 16 or 18 in. can be provided for use on the machine. As the machine has a single pulley drive, the motor application is very simple. The motor is mounted on a plate directly on the headstock, and the drive is by a multiple V belt. A constant speed motor is recommended, variations of speed and feed being obtained through change gears, the same as on belt-driven machines.

Following are some of the principal dimensions of the machine: Platen size, 50½ by 45 in.; swing over top of platen, 17¾ in.; swing over gap in platen, 23¾ in.; travel of platen, 12 in.; platen adjustment, 6 in.; maximum travel of tool slides, 6 in.; maximum length of work which can be centered, 18½ in.; center-to-center distance between spindle bearings, 22¼ in.; diameter of hole through spindle, 2⅝ in.; maximum horsepower required, 15; speed of driving pulley, 1500 r.p.m.

Black & Decker Announces High Cycle Tools

BLACK & DECKER MFG. CO. has announced the development of a complete line of portable electric tools of the high cycle type operating on 180 cycle cur-



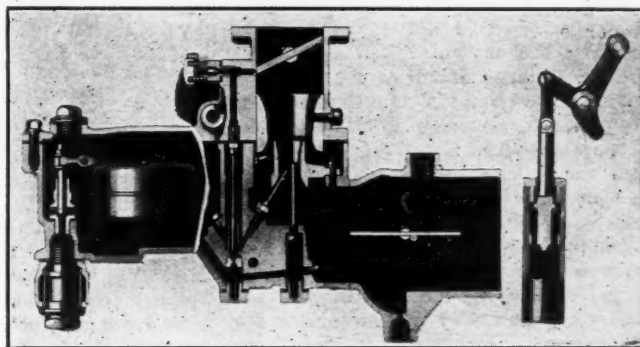
One size of high cycle, Black & Decker screw drivers and socket wrenches which is part of the complete line of drills and electrical grinders in high cycle equipment

rent. These tools, driven by three-phase, squirrel cage motors are featured by their simplicity and great power.

The motors, of course, have no commutator or brushes, thus eliminating the sources of most frequent trouble on electric tools of ordinary construction. The rotors are of copper bars riveted in place in the laminations and then welded so that the only revolving wires as the only windings are on the stator.

It is possible to get more power per pound from these high cycle tools than with universal motors and, due to the fact that the three-phase squirrel cage motor maintains its speed under load, the high cycle tools will do more work at rated capacity. Black & Decker state that high cycle tools are preferably used in plants where 10 or more tools are used in production work, the supply of current being obtained from a frequency charger or alternater.

Zenith Has New Carburetor



Two sections of the new Zenith Series 100 carburetor, the upper showing general arrangement of metering and compensating jets, while the lower shows the accelerating well fuel pump which is actuated positively by the throttle mechanism

A NEW carburetor, the "Series 100," has been placed on the market by the Zenith Carburetor Company. It is of the double venturi type and incorporates a throttle actuated plunger pump to supply an injection of fuel when the throttle is suddenly opened as when rapid acceleration is desired.

The idle jet of the new carburetor is independent of the main supply and can be regulated by means of an air valve located near the idling jet outlet. It is so designed that closing the choke valve in the air intake will provide an atomized feed of fuel through the idling, or starting jet, the same jet being used for both functions.

The accelerating system of the Series 100 carburetor is composed of the accelerating pump, which discharges a quantity of atomized fuel into the large venturi coincident with opening of the throttle, and a discharge tube opening into the lower, smaller venturi, which injects the remainder of the fuel which had been in the accelerating well into the airstream. The carburetor has been so designed that by the time this fuel has been discharged, the inertia in the main jet will have been overcome and normal fuel and airflow will have been reestablished.

AUTOMOTIVE **NEWS SECTION** INDUSTRIES

Philadelphia, Pennsylvania

Saturday, July 9, 1927

More Favorable Market Likely to Develop Soon

PHILADELPHIA, July 9—The effects of the floods in some sections, retarded crops in others, and scattered irregularity in industrial activity have held back automotive sales in recent weeks, and the situation has been aggravated by the imminence of new models and especially the new Ford. But the observers of the industry regard conditions surrounding the sales of cars as fundamentally sound for the nation as a whole, and they are facing the final six months of the year with more than usual optimism.

Although in recent years the first six months has regularly run ahead of the final half in production and sales, there is felt to be a possibility that 1927 will make a more favorable showing in this respect. The prevailing uncertainty should soon be cleared up and the industry will be in better condition to appraise the outlook.

Several large factories were almost out of production last month and these are generally speeding up on new model output. Others, however, have gone into the annual period of changeover and no great advance over the June rate is anticipated.

On the retail end the status of business is spotty. Used cars are apparently better in many sections but others report heavy accumulations for the season. Evidence that in some lines dealers did not succeed in cleaning up new car stocks before new models were introduced is seen in some of the forced sales being held at big temporary reductions in price.

Dodge to Introduce Country's Fastest "4"

DETROIT, July 9—The report is current in automobile circles here that Dodge Bros., Inc., shortly will make a sensational announcement concerning a new line of four-cylinder cars that will be the fastest fours in America.

These cars, it is understood, will be priced at lower levels than any previously built by Dodge. It is further reported that they will be marketed with special emphasis on economical operation.

This week the company is announcing the second car in its six-cylinder "Senior" line, a cabriolet roadster.

N.A.C.C. Directors' Meeting

NEW YORK, July 5—Directors of the National Automobile Chamber of Commerce will meet July 14 at the Buffalo Country Club, as guests of Col. Charles Clifton, honorary president.

A.E.A. Jobbers May Enter Retail Field

Way is Paved at Behest of Accessory Division at Meeting in Portland

PORTLAND, ORE., July 6—An outstanding feature of the summer meeting here of the Automotive Equipment Association was the proposal from the Accessory Division, headed by Henry Kirkland, that the jobber members of the association take steps looking to aggressive entry into the retail end of the accessory and equipment business.

This is a complete reversal of the "wholesale only" policy adopted by the A.E.A. several years ago.

In order to pave the way for official sanctioning of retailing by the association an amendment of the constitution was proposed which cites as a condition of membership, a business, the "majority" of which is wholesale, instead of "exclusively" wholesale, as at present.

Moock Program Approved

The meeting was dominated by discussions of the Greater Market Development program which the A.E.A. is getting under way under the direction of Harry G. Moock. The program as presented by Mr. Moock was approved.

A Replacement Parts Committee to function until November was appointed as follows: C. C. Secrist, Victor Manufacturing Co., Chicago; G. H. Butler, Toledo Steel Products, Toledo; Howard Dine, Dine-De Wees, Canton, Ohio; E. Hiebel, Chanslor & Lyon, San Francisco; A. H. Weber, Gibson Co., Indianapolis; John Whitaker, Whitaker Battery Supply, Philadelphia, Pa.; E. C. Miner, Multibestos Co., Walpole, Mass.; E. Granger, American Hammered Piston Co., Baltimore.

Kettering Foundation Incorporated in Ohio

DAYTON, OHIO, July 8—The Charles F. Kettering Foundation of Dayton, Ohio, has been incorporated under Ohio laws, not for profit and with no capital, but designated to receive money and property either by gift or legacy from Charles F. Kettering to be distributed by action of the board of trustees for the advancement of human knowledge and progress of science and for the advancement of art and literature and for charitable distribution.

The trustees, as named in the articles of incorporation, are: Charles F. Kettering, George B. Smith and Lee Warren James. The purpose of the foundation is to distribute in the interest of education and charity a portion of the estate of the founder.

Continental Motors Plane is Wrecked

President Judson and Other Occupants Escape Crash With Minor Injuries

DETROIT, July 7—Ross W. Judson, president of Continental Motors Corp., escaped with bruises yesterday when the corporation's three-motored Fokker plane was wrecked in making a forced landing at the Grand Rapids Airport. Six other occupants of the plane suffered shock and sustained minor injuries and were taken to a Grand Rapids hospital for treatment. Judson was able to proceed to Detroit by automobile.

A. R. Kelso, general manager of Continental Motors, has lacerations on the head, right leg and forearm, and C. O. Jewell, chief inspector, has lacerations on the frontal bone. Lieutenant George R. Pond, pilot, was cut on the face and right leg. Miss Jane Judson, the motor manufacturer's daughter, and Mrs. Gertrude Ketchen and Mrs. Evelyn Bentley, other passengers, are suffering from shock. Robert M. Ellis, Chicago, the eighth passenger, escaped injury.

The plane, which was being landed on account of a broken oil line, hit some hummocks about 18 inches high as the wheels touched the ground and after running over the rough terrain for a short distance tipped over on its back. It was badly damaged.

Industry's Payroll Higher During May

Slight Increase Also Reported in Number Employed in Automobile Factories

WASHINGTON, July 5—Slight increases in the number of workers and the amounts of their payrolls were reported by the 203 automobile manufacturers during May, compared with April, according to figures announced this week by the U. S. Bureau of Statistics of the Department of Labor.

The manufacturers reported 338,816 workers on their rolls in May compared with 337,893 in April. The payroll in May was \$11,676,475 as against \$11,606,122 in April.

Reports from 59 tire manufacturers show 59,192 employees in May compared with 57,047 in April with an increase of 2.5 per cent in the payroll.

As compared with May, 1926, the number of workers in the automobile industry declined 2 per cent, but increased 0.9 per cent in the amount of the payroll. The tire industry showed an increase of 7 per cent in number of employees and a 12 per cent gain in the payroll over May of last year.

New Yellow Truck Plant Ready Jan. 1

DETROIT, July 6—The new Yellow Coach & Truck Manufacturing Company's plant, which is being built in Pontiac, will be ready for occupancy by the first of the year, Paul W. Seiler, president, told the Chilton Class Journal Co. Tuesday afternoon after he had turned the first spade of earth.

A gathering of 100 representatives and citizens of Pontiac were on hand for the ceremony and to extend their congratulations to the management of Pontiac's new industry. A number of executives of the Yellow company were also present. Excavating work will be begun immediately, Mr. Seiler said, and construction work will be rushed so that the company can center all of its operations in Pontiac at the earliest date possible.

Louis Ruthenburg, who has been named assistant general manager, will have active charge of the construction program.

Studebaker Adds Two Coupe Models

SOUTH BEND, IND., July 8—Announcement was made this week of the addition of two coupe models to the Studebaker "Dictator" (Standard Six) line—a sport coupe listing at \$1,345 and a business coupe at \$1,245, the former being fitted with a rumble seat, with interior upholstered in mohair and

rumble seat in leather, while the latter model is upholstered in leather all through. Bodies are of steel with narrow front pillars.

Included in the features of the sport coupe are a golf club compartment, package compartment in back of the front seat and a rear window which can be lowered to secure maximum ventilation.

Merseles to Head Johns-Manville

NEW YORK, July 9—The Johns-Manville Corp. announces the election of Theodore F. Merseles as president. H. E. Manville, who has served as president since the death of his brother, T. F. Manville, in 1925, has been elected chairman of the board of directors. Mr. Merseles, who retires from the presidency of Montgomery Ward & Company, will continue as a director of that company and as chairman of its executive committee.

Reo Sets June Record; 40% Gain Over 1926

DETROIT, July 8—A June production record was set by Reo when 4400 units were built, a gain of 40 per cent over last year. Pleasure car shipments totaled 3540, compared with 911 last year. The company shipped only 1000 speed wagons compared with 2378 last year, but the reason for this was that the company was just entering production of its new line of commercial vehicles.

Willys Reported Arranging for Factory in Sweden

TOLEDO, O., July 8—John N. Willys, president of the Willys-Overland Co., who is now in Stockholm, Sweden, where he attended the recent congress of the International Chamber of Commerce, is said to be negotiating for the erection there of a Willys-Overland assembly plant.

Motor Wheel Declares Quarterly Dividend of 2%

DETROIT, July 8—The Motor Wheel Corp. has declared the regular quarterly dividend of 2 per cent on the preferred stock, payable Aug. 15 to stock of record July 30. A resolution was adopted by the directors to redeem all outstanding preferred stock Aug. 15, the directors have decided.

Olds Advances Stambaugh

LANSING, MICH., July 9—The appointment of T. H. Stambaugh as general service manager of the Olds Motor Works has been announced by D. S. Eddins, vice-president and general sales manager. He succeeds R. M. Hatfield who resigned to take up other duties with the General Motors Corp. Mr. Stambaugh has been service promotion manager at Olds.

Business in Brief

Written exclusively for AUTOMOTIVE INDUSTRIES by the Guaranty Trust Co.

NEW YORK, July 8—Further seasonal recession in industrial activity appeared last week. Retail trade, on the other hand, has been benefited by favorable weather, and the outlook for the crops has definitely improved. Both stock and commodity prices moved downward last week while money rates advanced slightly. Railway freight car loadings continued below the level of a year ago during the week ended June 18, with a total of 1,016,351, as against 1,028,305 in the preceding week and 1,036,643 in the corresponding period last year. Loadings for the year to date number 24,308,520, which compares with 23,953,789 a year ago and 23,335,317 two years ago.

PETROLEUM PRODUCTION

Crude petroleum production advanced to a new high record during the week ended June 25. The average daily output was 2,510,750 barrels, as compared with 2,509,650 barrels a week earlier and 2,021,150 in the corresponding period last year. Both crude oil and gasoline prices remained virtually unchanged last week.

ENGINEERING CONTRACTS

Engineering contracts reported to the *Engineering News-Record* for the week ended June 30 had a total value of \$73,666,000, which compares with \$73,042,000 for the preceding week. The value of contracts awarded so far this year is \$1,513,096,000, as against \$1,360,007,000 a year ago.

BANK DEBITS

Bank debits to individual accounts reported to the Federal Reserve Board for the week ended June 29 were 3.7 per cent smaller than the total for the preceding week but 3.7 per cent above that for the corresponding period last year.

FISHER'S INDEX

Professor Fisher's index of wholesale commodity prices declined further last week to a new low point for the year, standing at 138.8, as against 139.3 a week earlier and 140.1 four weeks earlier.

FEDERAL RESERVE BANKS

Bills and securities held by the Federal Reserve banks increased \$78,600,000 during the week ended June 29, with gains of \$38,600,000 in discounts, \$32,900,000 in open market purchases and \$7,100,000 in holdings of Government securities. The entire gain in discounts was due to the increase in holdings of bills secured by Government obligations.

Note circulation increased \$13,300,000 and deposits \$34,200,000, while reserves decreased \$9,900,000. The reserve ratio declined from 78.8 to 77.6 per cent.

The call loan rate ranged from 4 to 5 per cent last week, as against a flat rate of 4 per cent a week earlier.

3000 Fighting Planes in 5 Years, U.S. Plan

**\$35,448,000 Available for New
Equipment in 1927 Under
Five-Year Program**

WASHINGTON, July 8—This month marks the beginning of the second year of the Army and Navy's five-year aviation program, the two branches of the Government having at their disposal for expenditure this year a total of \$35,448,000 for aviation equipment, planes, motors, etc. The program calls for the purchase by the Navy this year of 273 new planes, while that of the Army provides for the purchase of 590 planes.

In a statement just made, Assistant Secretary of War for Aeronautics F. Trubee Davidson sums up the aviation picture as of 1932—the last year of the five-year construction program. The Army will have 2000 fighting planes, the Navy 1000. The personnel will be 1650 flying officers, 555 reserve officers and 15,000 enlisted men.

Congress has already provided for the full program which carries with it an expenditure in 1928 of \$16,223,750 for new motors and planes; \$17,582,000 in 1929; \$18,941,000 in 1930; \$20,046,250 in 1931 and \$17,476,250 in 1932. During the first year of the program the two departments spent \$15,285,000. All of this was for equipment alone.

Simultaneously with Mr. Davidson's statement, Secretary of Navy Wilbur declared that the "air-cooled engine is the turning point in aviation and will bring about new progress not before believed possible."

McFarlan Announces New Model and Price Changes

CONNERSVILLE, IND., July 8—The McFarlan Motor Co. has announced the addition to its Straight 8 line of a four-passenger sport phaeton listing at \$3,180. Announcement is also made that four other models in the "TV" series have been discontinued. These are the four-passenger coupe and three sedan models. The seven-passenger sedan and the seven-passenger suburban sedan on the Straight 8 chassis have been lengthened from 131 in. to 136 in. wheelbase.

Three price changes affecting "TV" models also have been made as follows: Two-passenger roadster from \$5,400 to \$5,800; seven-passenger touring from \$6,810 to \$5,700, and the seven-passenger suburban sedan from \$7,110 to \$6,920.

226 A. E. R. A. Exhibitors

CLEVELAND, July 8—The exhibit committee of the American Electric Railway Association met here recently and assigned space to 226 exhibitors for the 46th annual convention in October.

Falcon Motors Conducts Factory School to Perfect Service Work on Knight Engines

DETROIT, July 6—Under a new plan developed by the service department of Falcon Motors Corp., nearly every dealer establishment in the organization now has a service manager or foreman who has received factory instruction on the maintenance and care of Knight engines.

A base school is conducted at the factory and is attended by service managers from Falcon-Knight direct dealers. The representatives from the dealers are selected not only for their mechanical ability but also for their ability to impart to others the knowledge which they gain at the base school. The factory instruction requires one week during which theoretical studies of the engine are followed by actual overhauling work. Use of proper tools and speed-up devices is emphasized and each student is given an opportunity to dismantle and

reassemble the engine and chassis units that he may understand every detail of the car.

Upon the return of these men to their own localities they set up similar schools for service managers of Falcon-Knight associate dealers and independent garages and service stations are also urged to send representatives to the schools. These local schools are conducted in the same way as the base school with the exception that expensive cut-away models are not provided.

This new plan was inaugurated as a very important part of the plan for popularizing and merchandizing a new car since the trained service managers not only inspect new cars before delivery to the public but they follow through the sale to make sure that every owner is getting the maximum service out of his car.

Hudson-Essex Ends Most Successful Half-Year

DETROIT, July 8—June 30, Hudson-Essex closed the most successful half-year in its history, having built between 165,000 and 170,000 cars. Despite this volume, the company reports that it has been continuously behind the demand for its cars, especially the Essex. About 10 days ago the company announced that dealers had already placed orders for the entire July schedule of Essex cars, which will total approximately 32,000 units.

Graham Truck Shipments Reach New High Peak

DETROIT, July 8—Delivery of commercial cars by Graham Brothers, a division of Dodge Brothers, Inc., for the week ending June 18 exceeded any corresponding week in the company's history. A total of 1415 vehicles were delivered during the week to domestic and Canadian purchasers. It was also the biggest week in 1927.

N.S.P.A. Elects New Members

DETROIT, July 7—Directors of the National Standard Parts Association at their midsummer meeting in Cleveland elected 11 new members, four of which are manufacturers, as follows: Irving Engineering Co., Buffalo, E. P. McDonald, president; Richmond Piston Ring Co., Richmond, Ind., E. W. Allen, secretary-treasurer; Ross Gear & Tool Co., Lafayette, Ind., F. C. Scrimsher, manager replacement sales; The C. Spiro Manufacturing Co., Dobbs Ferry, N. Y., Walter J. Spiro, treasurer.

Vote July 12 on Lower Rubber Change Rates

Reduction in Commissions Expected to Widen Public Interest in Rubber Market

NEW YORK, July 8—While holiday quietness pervaded the Rubber Exchange, the board of governors took action on a proposal to lower rates of commission. Members will vote on the proposal July 12. The proposed new commissions will be \$15 instead of \$25 on each contract bought by a resident of the United States or Canada not a member of the Exchange, and \$7.50 instead of \$12.50 for members in the United States or Canada.

The belief of President F. R. Henderson is that the amendment if adopted will provide a wider public interest in the market and that rubber manufacturers here and producers abroad will avail themselves more freely of the hedging facilities offered by the Exchange.

Says Henderson, Helm & Co., Inc., with regard to the current market.

"The chief topic of interest in the market this week has been a revival of discussion regarding the action the British Government will take with regard to the Stevenson Restriction Enactment. The British Colonial Office has issued statements contradicting the different rumors, and indicated that the Government does not contemplate any alteration in the act at the present time. In the meantime, the statistical position does not improve and the general feeling is that the market will yield further."

Exports in May 10% Below April Record

Shipments, However, Still Far
Ahead of 1926 — 83%
Gain for Trucks

WASHINGTON, July 7—Automotive exports from the United States during May totaled \$42,322,127, which were approximately 10 per cent below the record exports of April, according to figures compiled by the U. S. Department of Commerce. Shipments of passenger cars dropped 12 per cent below the April figure, but showed an increase of 38.6 per cent over the corresponding period of last year. Trucks dropped 11.4 per cent below April, but were 83 per cent above the May, 1926, shipments.

The total shipments of both passenger cars and trucks stand as the second largest month in the exports of American motor vehicles in the history of the industry. For the first five months exports of passenger cars totaled 138,955 with a value of \$101,090,627, as compared with 111,076 units valued at \$81,405,348 during the January to May period of 1926. Truck exports were 47,911, valued at \$29,928,000 compared with 31,091 units valued at \$20,964,466 in 1926.

Linde Air Products Co. to Build Duluth Plant

DULUTH, MINN., July 8—Construction is to begin Aug. 1 for completion in February of a \$200,000 plant by the Linde Air Products Co., the first of a series of structures on a tract of 11 acres owned by the Union Carbide & Carbon Corp. of New York. After that a Prest-O-Lite plant will be built to cost \$200,000. The eventual investment will be \$1,000,000.

Nevada Road Show Opens

RENO, NEV., July 5—The Nevada State Good Roads Exposition, intended primarily to attract nation-wide attention to the Lincoln Highway across the continent, opened here June 26 and will continue for a month or more. The California delegation, including State and city officials, motored over in a long automobile caravan and opened the show. The California and Nevada buildings and the other structures on the exposition grounds are devoted largely to automobile exhibits.

Splitdorf Employees Insured

NEWARK, N. J., July 8—Splitdorf-Bethlehem Electrical Co. has insured each of its employees in the sum of \$1,000, according to an announcement by Walter Rautenstrauch, president of the company.

The plan includes a total permanent disability benefit as well as the coverage on the life of the employee.

Bay State is After Insurance Dodgers

BOSTON, July 8—Massachusetts motor vehicle inspectors have now started a campaign against Bay State owners of cars and trucks who are registering their cars in neighboring States to dodge the Compulsory Insurance law. The first drive was made near the Rhode Island line when 16 residents operating under Rhode Island plates, but living across the line in Massachusetts, were served with summons to appear in court. Other inspectors are about to make a checkup on residents on the borders of New Hampshire, Vermont, New York and Connecticut.

Tire Price Increase Forecast in Akron

AKRON, OHIO, July 8—Reports that mail order prices on automobile tires and tubes will be advanced on Sept. 1 from 5 to 8 per cent are interpreted as forecasting firmness in the general tire market for the immediate future, and probably an increase on all lines within the next 60 days.

The move by the mail order houses is a step in the right direction, according to Akron manufacturers, and will help to stabilize conditions in the industry.

While crude rubber is several cents a pound lower, cotton fabric is selling considerably higher than last year. The Mississippi floods have cut down the supply of long staple cotton, used largely in tire manufacture.

Seaboard Bus Project Stirs Independents

CHARLOTTE, N. C., July 8—A situation regarded as extremely serious by the motor bus transportation industry of North Carolina developed when the State Corporation Commission, at Raleigh, granted the Seaboard Air Line Railway authority to operate a bus line paralleling an established privately-operated line.

Attorneys for the Carolina Motor Carriers' Association stated that events may prove this "the entering wedge" in an effort of the railways to obtain control of the state's motor bus transportation after "private operators did the experimenting and paid the price of being pioneers."

An injunction to restrain the Seaboard from operating under the authority granted by the Corporation Commission will be sought by the privately operated bus lines through attorneys for the association, according to an announcement by Col. T. L. Kirkpatrick of Charlotte, attorney for the bus operators.

Goodyear-Zeppelin Expansion Planned

Facilities Will Be Extended
in Anticipation of Large
Government Contracts

AKRON, OHIO, June 8—Immediate expansion of the Goodyear-Zeppelin Corp., subsidiary of the Goodyear Tire & Rubber Co., is planned, following approval by the U. S. Navy of the design submitted by the company for a giant Navy dirigible to replace the Shenandoah. A \$50,000 prize was awarded the Zeppelin corporation for its work. The construction contract likely will go to the Akron concern this fall.

The Navy Department hopes for the construction by the end of 1930 of two big dirigibles of the Goodyear-Zeppelin type. They will be the most powerful ever assembled, and insure, for the next few years, American supremacy in the lighter-than-air field. This program will involve an expenditure of about \$8,000,000.

The plans for the new Navy dirigible call for ships of 6500 cu. ft. gas capacity. They will have a cruising radius of 14,000 miles, at almost 60 m.p.h. They will be able to fly 7000 miles at a speed of 80 m.p.h.

Columbus McKinnon Chain to Move Sales Office

COLUMBUS, OHIO, July 8—The general sales office of the Columbus McKinnon Chain Co., manufacturer of Dreadnaught tire chains and other accessories, will be moved from Columbus to Tonawanda, N. Y., about July 15 when Don Brisbin, general sales agent, moves his headquarters there.

The Columbus branch of the company will continue in operation and will be enlarged.

European Cars Gaining

WASHINGTON, July 7—The American Trade Commissioner at Buenos Aires reports to the Department of Commerce that European automobiles are increasing in popularity in Argentina. He reports that in 1926 there were 1775 European passenger cars imported, representing an increase of 91.5 per cent over 1924. For the four months of 1927 European units imported totaled 671, at which rate the total for the year would exceed 2000.

Becomes Airplane Distributor

SPRINGFIELD, MASS., July 8—Massachusetts Airways Corp. of this city has been appointed distributor for the Alexander "Eagle Rock" plane, made by the Alexander Aircraft Corp. of Denver, Col. Harold M. Parker, a world war flier and distributor here for the Stutz automobile, is head of Massachusetts Airways.

Men of the Industry and What They Are Doing

Hauer, Mack Bus Manager, Elected Vice-President

Roy A. Hauer, manager of the general bus department of the Mack-International Motor Truck Corp., at the June meeting of the Board of Directors, was elected a vice-president of the company. He will continue as general manager of the bus department. Mr. Hauer has been with Mack-International many years and has filled various positions in the field and at the head office.

The Mack company announces also the election of A. C. Fetzner, assistant general sales manager; J. N. Bayne, Newark branch manager; K. M. Blake, New York branch manager, as vice-presidents. Mr. Bayne and Mr. Blake will head the North Jersey Division and Greater New York Division, respectively. O. J. Evers was also elected a vice-president. The elections were effective July 1.

Lee M. Clegg Promoted

Lee M. Clegg has been promoted from sales manager of the original equipment division of Thompson Products, Inc., to general sales manager of both the original and replacement divisions of the Cleveland and Detroit plants. L. J. Scott will be sales manager at the Detroit plant and Burke Patterson will be sales promotion manager at the Cleveland plant.

Haynes Honored in Detroit

Frederick J. Haynes, chairman of the board of Dodge Brothers, Inc., has been elected president of the Detroit Board of Commerce. Mr. Haynes has been an active worker in the affairs of the board for a number of years.

New Mack Manager

William R. Rhoades has been appointed branch manager of the Scranton sales and service branch of the Mack-International Motor Truck Corp.

Fessenden Leaves North East

G. R. Fessenden has resigned as publicity director of the North East Electric Co., Rochester, N. Y., to accept a position as general manager of the Carpenter-Goldman Laboratories, Inc., Long Island City, N. Y.

Torridaire Sales Director

Harry Burr, formerly sales manager for the Houde Engineering Corp. of Buffalo, has become sales director for the Torridaire division of the American Metal Products Co. of Detroit, manufacturer of Torridaire Super Automobile Heaters.



Louis E. Ruthenburg

Whose appointment as assistant to the president of the Yellow Truck & Coach Mfg. Co. was announced last week. He had previously been general manager of the Yellow Sleeve Valve Engine Works at East Moline

Graver Named President of Indiana Corporation

EAST CHICAGO, IND., July 2—W. F. Graver has been elected president and treasurer of the Graver Corp. P. S. Graver, J. P. Graver and K. W. Bartlett, were named vice-presidents; H. S. Graver, secretary, and A. E. Lucius, assistant secretary.

A. W. Scarratt Joins International Harvester

A. W. Scarratt has been appointed chief engineer of the motor truck and coach division of the International Harvester Co., which division comprises the factories at Springfield, Ohio, and Fort Wayne, Ind. To take up his new duties, Mr. Scarratt resigned as chief engineer of the Hyatt Roller Bearing Co., Newark, N. J. Previous to his connection with the Hyatt company he was chief engineer of the Minneapolis Steel & Machinery Co., in the truck and tractor department.



A. W. Scarratt

Partridge and Wilson Promoted by Goodyear

A. G. Partridge, formerly vice-president in charge of sales of Firestone Tire & Rubber Co., has been appointed manager of the western division of Goodyear Tire & Rubber Co., succeeding R. S. Wilson, who has been appointed advertising manager. Mr. Wilson succeeds L. L. King, who resigned May 15 to go into the outdoor advertising field.

Mr. Partridge has been in the rubber industry since 1899 when he became affiliated with the old Diamond Rubber Co., later absorbed by the B. F. Goodrich Co. When Firestone first started marketing pneumatic tires, Mr. Partridge joined that company, successive promotions carrying him to the head of the sales department. He left Firestone in 1921 to enter the real estate field, resuming his activities in the rubber industry last October when he joined the Goodyear sales staff.

Mr. Wilson has been connected with Goodyear since 1912, since which time he has many important sales positions with the company.

Chevrolet Promotes MacLean

W. A. MacLean, for some time district sales manager of the Chevrolet Motor Co. of Canada, Ltd., has been promoted to the position of sales manager for the province of Quebec.

Assistant Service Manager

G. S. Andrews has been appointed assistant service manager of the Ford Motor Co. of Canada, Ltd. He has been with the Ford organization since 1922 and was formerly attached to the staff of the Regina, Sas., branch.

Russell Ohio Manager

H. C. Russell has been appointed Ohio district sales manager by Indiana Truck Corp. He succeeds M. E. Brackett, who resigned to enter another business.

Dodge Official Transferred

W. J. Barron, formerly with the New York district for Dodge Brothers, has been transferred to the northwest in charge of the northwest district with headquarters in Seattle.

Peerless Names Distributor

SPOKANE, WASH., July 9—Appointment of the Auto Sales Co. of Spokane, as Inland Empire distributor for Peerless automobiles, is announced by J. H. Patton, special factory representative of the Peerless Motor Car Corp.

Heavier Steel Buying Expected in August

Mills Look for Automobile Factories to Increase Consumption in Near Future

NEW YORK, July 7—Sheets and strip-steel have been moving in fair-sized tonnages to automotive plants, representing mostly balances due buyers on old contracts which carried lower prices than those now in vogue. Fresh commitments are slow in materializing, although some business, especially in black sheets, that was hanging fire over the holiday is believed to have been closed since then.

Sheet rollers adhere to the 3 cent, Pittsburgh, base for No. 24 gage, and it is stated that out of a score of mills that bid on a round tonnage recently there was just one small producer sufficiently eager for the order to offer \$1 per ton concession to the prospective buyer. Sheet-rollers are not looking for any very large tonnage orders in the next few weeks. They anticipate a fair volume of small orders, and are not disposed to deviate from regular prices on business which they feel quite certain will come their way under any circumstances.

The third quarter price for sheet bars has been officially announced as unchanged from that which prevailed during the second quarter, \$34, and this would seem to indicate that little change one way or the other is looked for in the sheet market in the next few weeks. Full-finished automobile sheets continue firm at 4.25 cents, Pittsburgh.

The holiday and high temperatures in the Middle West resulted in reduced output, and the steel industry as a whole appears to have reconciled itself to rather dull, midsummer conditions in the immediate future. It is noteworthy, however, that, while consumers generally are expected to diminish their purchases, steel company sales managers look for increased demand from automotive consumers in August and September.

Pig Iron—Competition among blast furnaces is very keen, and automotive foundries buying in 100-ton lots have the upper hand in the market which continues to be nominally quoted at \$18. Valley furnace, for both malleable and foundry.

Aluminum—Automotive demand is light, consumers who buy in the "outside" market taking on no more metal than they need for their immediate requirements. Imports run light, but routine tonnages of British and German metal continue to arrive. On the whole, the market is marking time.

Copper—Acquisition of a large Detroit brass and copper rolling and wire-drawing mill by the leading interest further fortifies its position in the market for automotive brasses and kindred products. The copper market continues in the doldrums, with prices so low that at least one Michigan producer has suspended operations.

Tin—According to figures of the Amer-

Washington Forbids Speed Advertisements

SPOKANE, WASH., July 8—Automobile dealers in the state of Washington are now prohibited from offering for publication advertising or other copy of speeds in excess of those permitted by the law.

While this provision in the new motor code apparently was the result of a desire to prevent reckless driving, it would appear from examining the code that it is now within the power of any court in the state to punish dealers who make use of unusual performance achievements in the state to advertise their merchandise, regardless of the circumstances under which the performance was made.

A very strict interpretation of the section would also ban news stories of persons arrested for speeding.

ican Bureau of Metal Statistics 16,000 tons of tin entered automotive consumption last year, compared with 15,000 tons in the preceding year. This would constitute about 22 per cent of the entire American tin consumption, and, when it is considered that tin consumption in tin plate, the largest outlet for the metal, aggregates only 27,000 tons, the magnitude of automotive consumption becomes all the more impressive. The market is fairly easy.

Lead—Declines in London resulted in a \$2 per ton reduction in the contract price of the leading interest on July 1, making the market price 6.30 cents, New York.

Zinc—Consuming demand continues slack, the market being dull but fairly steady.

1,000,000 in Year See G.M. Exhibit

ATLANTIC CITY, July 8—The Steel Pier Co. last week tendered a dinner to the staff of the General Motors permanent exhibit here at the celebration of the first anniversary of the exhibit. City officials, executives of General Motors and representatives of commercial organizations attended.

During the 12 months that the exhibit has been open it is estimated that it has been visited by more than 1,000,000 people, including visitors from every State and 46 overseas and South American countries. The exhibition, which is the only one where all products of General Motors are shown under one roof, occupies 22,000 sq. ft. of floor space, all inclosed in glass, with a frontage of 65 ft. on the boardwalk.

Duluth Tries Windsor Plan

DULUTH, MINN., July 8—Seventeen automobile dealers have adopted the Windsor plan for selling used cars. The plan has been endorsed by the Minnesota Motor Trades Association.

Excise Tax Repeal Considered Oct. 31

Draft of New Bill to Be Discussed By Committee on That Date

WASHINGTON, July 6—The initial draft in the new tax bill, which it is expected will provide for the repeal of the 3 per cent excise tax on automobiles, will be considered by the House Ways and Means Committee which has been called to meet here on October 31, Chairman Green of the Committee announced this week.

There will be a joint meeting of the Congressional Committee on Internal Revenue Taxation ten days before the meeting of the House Ways and Means Committee and automobile taxation will also be discussed then.

Congressman Charles B. Timberlake (Rep.) of Colorado, announced himself as being in favor of the complete repeal of all nuisance taxes, which includes automobiles taxes, following a conference with President Coolidge at Rapid City, S. D., it was announced here at the Washington office of the White House.

G.M. May Establish Truck Plant in Kansas City

KANSAS CITY, July 8—Reports in Kansas City are that the General Motors Corp. is contemplating the construction of a large assembly plant here to cost from \$1,000,000 to \$1,500,000.

An option on a tract of land with a 210-foot frontage and running through one full block has been taken in the name of the General Motor Truck Corp. The title to the land now is in litigation and if this litigation is settled it is expected the option to the land will be exercised.

Finance Companies Merge

DETROIT, July 8—The Union Investment Co. and the Motor Buyers, Inc., both large automobile finance companies, have been merged. The two companies were organized eight years ago and the new company will retain the name of the Union Investment Co., of which Abraham Cooper is president. The company's annual business will aggregate about \$5,000,000.

Increase in Car Thefts

BALTIMORE, Md., July 6—Increase in automobile thefts in Baltimore has reached "disturbing" proportions, according to the report of the police department for the first quarter of 1927. The survey shows that 726 automobiles were reported stolen during the first three months of this year. This number is 211 greater than for the same period of 1926 and twice the number in 1924.

N.A.C.C. Now Member of World Chamber

Chapin Proposal for Promotion of Automobile Generally Is Adopted

PARIS, June 21 (by mail)—The United States and Germany were welcomed to full membership in the Bureau Permanent International des Constructeurs d'Automobiles at a meeting held in Paris Saturday. The bureau, which can best be described as the International Automobile Chamber of Commerce, is a grouping of the automobile manufacturers' associations of the world and by the admission of America and Germany it has now become truly international. The National Automobile Chamber of Commerce was represented by its president, Roy D. Chapin, Alfred Reeves, general manager; John N. Willys and Windsor T. White.

The nations represented at this gathering were France, Belgium, Italy, Holland, Spain, Great Britain, Germany, United States, Austria and Czechoslovakia.

Propaganda Commission

On the suggestion of Mr. Chapin, it was unanimously decided to appoint an international propaganda commission, and the members elected were Mr. Chapin (U.S.A.); Baron Petiet (France); Mr. Hacking (Great Britain); Herr Hanel (Germany and Austria). Mr. Chapin explained that the object of this commission was to develop a system of world-wide propaganda in favor of the growth of the automobile movement. During the first meeting it was decided to send out a questionnaire to the various national automobile manufacturer associations asking for information on the development of the movement in their territory as a preliminary to plans for an extensive campaign for the removal of existing obstacles to the growth of the automobile.

Seen in Paris, Mr. Chapin stated that the suggestion to form an international propaganda had been well received by European manufacturers. "While this is an entirely new development, for there has been little co-operation among Europeans up to the present, Paul Panhard, of the Panhard Levassor Co., was the first to declare that the French manufacturers association would vote the necessary credits for this work. Other European nations followed suit and it was not necessary for the N.A.C.C. to set the example for the working funds to be secured. The fact that little or nothing has been done in the past need be no deterrent; the European manufacturers appear to have been quick to realize that important benefits can arise from cooperation on a general policy and I am very hopeful of results."

During the meeting there was discussion

on the conditions of admission into the international automobile shows. No decisions were taken, and no changes can be made for 1927, but an effort will be made later to standardize show rules so that there will be equal treatment among foreign exhibitors throughout the world. International show dates were decided on for 1928.

The bureau elected its officers for 1927, Baron Petiet of the French group being president, and Mr. Lanchester of the English Association, vice-president. Henri Cezanne was reappointed general secretary.

Mr. Chapin and Mr. Reeves have moved to Scandinavia in order to attend the highway section of the International Chamber of Commerce. Mr. Reeves will visit various dealers associations in the Scandinavian countries, before going to England to sail for home.

Rubber Exports Increase; May Total Is Above 1926

WASHINGTON, July 5—Exports of tires and tubes and other rubber products from the United States during May of this year totaled \$5,600,000, which is \$600,000 more than the average for 1926, according to figures announced by the Department of Commerce. Of this total approximately 90 per cent was accounted for by tires and tubes.

The average unit value of automobile casings exported was \$13.17, compared with \$12.40 for the average for the year of 1926. Inner tube unit values was \$2.25 a tube. The average for solid tires was 31.47. The largest shipments of casings in May were to Argentina which took the lead from Britain in spite of a decline in shipments to that market of approximately 7000 casings.

G.M. Builds Stamping Mill

DETROIT, July 5—General Motors of Canada, Ltd., is building a large stamping mill at Oshawa. The project will be completed in about 10 weeks and will represent an expenditure of approximately \$600,000. The structure will contain 80,655 sq. ft. of floor space and will be equipped with 50 presses for the manufacture of fenders, radiator shells, hoods, gasoline tanks, running board aprons and other sheet metal parts required in the manufacture of the corporation's Canadian-built automobiles.

Servel Offices at Hercules Plant

EVANSVILLE, IND., July 8—The Servel Manufacturing Co. has established sales, promotion, and publicity headquarters at the local Hercules commercial car body plant, Fred P. Nehrbas, vice-president and general manager, announced. Col. K. W. Smith, New York City, president, visited the plant this week to confer with department heads.

Hoover to Launch New Traffic Study

Representatives of Leading Groups to Aid in Forming Model Ordinance

WASHINGTON, July 8—Responding to a widespread demand for a model on which municipal traffic ordinances can be based, Herbert Hoover, secretary of commerce, as chairman of the National Conference on Street and Highway Safety last week invited some 40 leading representatives of groups interested to serve on a committee to report on the subject. William E. Metzger, of Detroit, is chairman. A preliminary meeting of the committee was held in Detroit on July 6.

Among those who have signified their willingness to serve on the committee are Harland Bartholomew, city planning engineer, of St. Louis; Roy F. Britton, Automobile Club of Missouri, St. Louis; Howard D. Brown, Detroit Automobile Club; G. W. Elliott, director of public safety, Philadelphia; P. L. Emerson, Yellow Truck & Coach Mfg. Co.; A. C. Godward, city planning engineer, Minneapolis; S. R. Heller, Yellow Cab Co., Norfolk; Robert P. Hooper, formerly president of the American Automobile Association; A. N. Johnson, College of Engineering, University of Maryland.

Alvan Macauley, Packard Motor Car Co.; James L. Madden, third vice-president, Metropolitan Life Insurance Co.; E. J. McIlraith, Chicago Surface Lines; W. B. Powell, consulting traffic engineer, Buffalo; C. W. Stocks, Bus Transportation; Robbins Stoeckel, commissioner of motor vehicles, Connecticut; Lucius S. Storrs, American Electric Railway Association; F. L. Swetland, the Swetland Co., Cleveland; W. J. Towne, chief engineer, Chicago & North Western Railway, and Sidney J. Williams, director, public safety division, National Safety Council, Chicago.

H. B. Flowers, president, New Orleans Public Service, Inc.; Arthur A. Thomas, chairman, joint standing committee on ordinances, Providence; T. H. Carrow, supervisor of safety, Pennsylvania Railroad; John McChord, Cleveland Automobile Club; R. T. Senter, president Philadelphia Rapid Transit Co. Representatives of automobile dealers, retail merchants, traffic judges, police and other interested groups have also been invited.

The subjects to come within the scope of the study have been tentatively classified as (1) motor vehicle movement and regulation, (2) pedestrian facilities and regulation, (3) traffic signs, signals and markings, (4) parking, terminals and garages, (5) public motor vehicles, street cars and emergency vehicles, and (6) traffic organization and enforcement.

Exports, Imports and Reimports of the Automotive Industry for May of Current Year and Total for Five Months Ending May, 1927

	Month of May 1926		Month of May 1927		Five Months Ending May 1926		Five Months Ending May 1927	
	Number	Value	Number	Value	Number	Value	Number	Value
Automobiles, parts and accessories.....	..	\$29,683,145	..	\$40,674,026	..	\$150,300,512	..	\$182,887,591
Electric trucks and passenger cars.....	8	20,202	11	16,973	31	56,666	47	64,186
Motor trucks and buses, except electric....	..	..	..	..	..	..	..	..
Up to 1 ton, inclusive.....	4,686	2,060,729	8,980	4,279,473	24,344	11,213,056	40,135	18,237,390
Over 1 and up to 2 1/2 tons.....	895	1,150,650	1,353	1,950,499	5,182	6,797,164	6,782	8,717,030
Over 2 1/2 tons.....	163	518,960	177	548,880	947	2,954,246	994	2,974,343
Total motor trucks and buses, except electric	5,744	3,730,339	10,510	6,778,852	30,473	20,964,466	47,911	29,928,763
PASSENGER CARS								
Passenger cars, except electric (total).....	22,120	17,423,826	30,652	22,775,947	111,072	81,462,848	138,955	101,090,627
Value up to \$500.....	6,458	2,641,427	5,720	2,099,261	45,970	17,336,783	38,219	14,199,335
Value over \$500 up to \$800.....	8,241	5,515,032	11,792	6,558,949	30,581	20,951,877	46,231	26,924,335
Value over \$800 up to \$1,200.....	5,721	5,986,220	8,385	7,103,454	26,646	28,220,767	36,548	32,408,289
Value over \$1,200 up to \$2,000.....	1,128	1,706,683	3,665	4,468,839	5,413	8,220,424	13,893	17,563,967
Value over \$2,000.....	572	1,574,464	1,090	2,545,444	2,462	6,732,977	4,064	9,994,701
PARTS, ETC.								
Parts, except engines and tires.....	..	3,688,365	..	5,052,250	..	21,472,844	..	22,845,942
Automobile unit assemblies.....	..	2,515,859	..	3,906,802	..	14,909,452	..	19,176,094
Automobile parts for replacement.....	..	858,059	..	809,872	..	4,245,137	..	3,719,016
Automobile accessories.....	..	655,242	..	710,578	..	2,916,099	..	3,443,958
Automobile service appliances (n. e. s.).....	11	18,005	16	16,599	66	57,278	135	81,623
Station and warehouse motor trucks.....	58	31,118	35	21,866	563	196,587	413	180,697
Trailers.....	5	7,300	4	44,314	11	42,438	18	308,165
Airplanes, seaplanes and other aircraft.....	..	19,316	..	11,698	..	85,797	..	110,741
Parts of airplanes, except engines and tires								
BICYCLES, ETC.								
Bicycles and tricycles.....	722	20,617	202	6,256	2,437	70,290	1,857	53,403
Motorcycles.....	2,061	442,313	1,843	401,279	11,894	2,574,819	9,635	2,160,203
Parts, except tires.....	..	135,062	..	116,834	..	782,079	..	586,087
INTERNAL COMBUSTION ENGINES								
Stationary and Portable								
Diesel and Semi-Diesel.....	64	79,450	49	150,153	356	613,945	304	570,835
Other stationary and portable:.....	..	..	..	..	..	..	..	..
Not over 10 HP.....	2,853	243,496	2,446	203,756	12,744	1,114,521	12,268	1,038,649
Over 10 HP.....	116	101,145	219	179,688	805	745,136	714	645,381
Automobile engines for:								
Motor trucks and buses.....	44	22,947	667	80,632	1,836	240,306	2,694	293,606
Passenger cars.....	13,625	1,423,548	22,112	1,252,698	73,633	6,948,793	57,726	5,769,357
Tractors.....	251	138,049	74	30,113	636	389,546	786	363,644
Aircraft.....	82	192,856	48	28,303	224	334,563	63	109,522
Engine accessories and parts (carburetors)	..	458,377	..	255,693	..	1,877,708	..	1,669,702
IMPORTS								
Automobiles and chassis (dutiable).....	50	102,678	80	136,740	282	507,556	229	426,474
Other vehicles and parts for them (dutiable)	..	6,755	..	9,653	..	39,130	..	84,980
REIMPORTS								
Automobiles (free from duty).....	12	18,244	34	34,538	52	74,562	88	141,606

Banks Use Airmail to Speed Clearings

Savings of Thousands of Dollars in Interest Reported at Boston Meeting

BOSTON, July 6—The big event in the week's celebration of the opening of the airmail service between this and other cities a year ago, was the banquet at the Chamber of Commerce last night attended by 1000 aviation enthusiasts. Lieut.-Col. H. H. Blee, personal representative of W. F. McCracken, Jr., assistant secretary of commerce for aviation, was the principal speaker. He gave an illustrated talk in which he traced the steps being taken by the Federal government in the development of commercial aviation, paying particular attention to the radio safety measures that the Bureau of Standards is perfecting. He made the prediction that the day is not far off when the entire country will be thoroughly covered with a highly developed system of commercial airways.

As an illustration of the way the air mail is used, Colonel Blee told how many of the larger banks are now using it exclusively for the transfer of clearings. It has been estimated by one bank, he showed, that the use of the airmail for this purpose has saved

\$7,000 in interest in one year. Other banks have reported savings of \$13,000.

Postmaster Roland M. Baker, who presided, pointed out that while last year the Colonial Air Transport, Inc., holders of the government airmail contract between Boston and New York, were carrying both ways only 200 pieces of mail a day, it now is carrying more than 1200 pieces. He praised the officials of the Colonial company for facing what they knew would be a deficit, and said Boston owes them a great debt. Many city and state officials were present, also a number of aviators, and representatives of all the civic clubs in Boston.

N.S.P.A. at A. E. R. A. Show

DETROIT, July 2—National Standard Parts Association will have a booth at the American Electric Railway Association show in Cleveland as a step in its educational program to bus and truck operators. The display will include maps showing location of N. S. P. A. jobber members and their facilities for service.

Pioneer Sells Flares

BROOKLYN, July 2—Pioneer Instrument Co. has taken over the distribution of Wiley emergency landing flares and brackets manufactured by the New Jersey Fulgent Co.

Post Office Expects Wide Air Service

Injury to Aviation Through Stunt Flying Seen Checked by Law

WASHINGTON, July 6—A prediction that there will shortly be a network of passenger air lines all over the United States is made here by Second Assistant Postmaster General W. Irving Glover, in charge of air operations of the Post Office Department. The statement, made orally, was in connection with the steps now being taken by the government to turn over to private contractors all air transportation of the mails.

Mr. Glover declares that the bidders for the lines all expressed a belief that the outcome of mail transportation by air would devolve into a passenger and mail combined service. Two routes are already in operation, carrying passengers and being aided financially by the Post Office Department through concession to carry the mails. They are between Salt Lake City and Los Angeles and Seattle and San Francisco.

The department deprecates the stunt-ing in aviation by aviators, pointing out that when one is killed "a million people read about it and mentally say to themselves that aviation is not safe."

Business Tone Firm for Second Half

Survey of automobile conditions in many cities shows most dealers expecting pickup during next six months.

(Continued from page 40)

due to general pick up in new car sales during June, despite opening of vacation period. Good weather and large crops with high prices have helped new car sales. New car stocks are about 10 per cent greater than same time last year, but used car stocks are at least 25 per cent greater, and used cars, unless rebuilt and guaranteed, are moving very slowly. Sales of new cars for June are estimated as about 10 per cent better than in June, last year, and 12 to 15 per cent ahead of May, this year. Trucks are moving slowly. General business conditions fair.

Seattle

Sales of new cars in the Seattle district for the first six months of 1927 will be 20 per cent to 25 per cent less than a year ago. The peak of this year was in March and recessions have been recorded in each month since. Although conditions are generally good in the Pacific Northwest, new car sales have not held up. The distributors have been vigorously trying to reduce car stocks which are lower than a year ago. There is more of a tendency to dispose of new cars on time sales. Some dealers in lower priced cars feel that the Ford announcement is holding some prospective purchasers back, pending a new car. Truck sales have been slow but immediate improvement is seen in the announcement that a \$13,000,000 state highway program will get under way immediately. Dealers think sales in the next few months should show a slight increase.

Dallas

General rains over Texas and parts of adjoining states broke a long drouth and assured a fair cotton, corn and sorghum grain crop. Wheat and oats, now being harvested, were not materially injured. General optimistic feeling pervades business and financial circles. Automotive dealers expect the trade for the last six months of the year to exceed the first half. June new car sales are somewhat better than last month. Ford sales still slow. Used car sales showed some improvement over last month. Retailers have pretty heavy stocks. New car stocks about normal. Most new truck business was replacement, except for lower priced class.

Cleveland

Automobile business in Cleveland took a turn for the worse in June, falling off 25 per cent from June last year. Contrary to reports of previous decline this year, the present condition cannot be attributed to low sales of any one or two manufacturers. Prospects for the next three months are not bright. The foremost effort of the moment is toward reducing dealers' stocks to be supplanted by new models. Reports show many old models still on hand. Difficult to determine reasons for curtailed buying. Employment continues fair, but people are skeptical of immediate future and money is tight.

Boston

Motor car sales during June averaged somewhat better than for May. Some dealers are off anywhere from

10 to 20 per cent, others more. There are a few that are ahead. There would have been more new cars sold if dealers agreed to make big allowances for used cars. Rather than do that they made their sales more on a profit basis. They did not want to get loaded up with used cars to start the second half of the year. Dealers agree that 1927 as compared to 1926 will be off in new car sales. As a general rule the dealers are not stocked up with new and used cars. The used cars are being sold through increased advertising space. In the last month or six weeks many dealers decreased their used car stocks 40 to 50 per cent. The anticipated new car announcements has slowed up sales in some classes.

Minneapolis

Automobile dealers are looking forward to better business the remainder of the year. The expectation is that the sales peak for 1927 has been postponed from May-June to August-September. Used car trade is good. Truck business is good, particularly in lighter capacities. Used truck business is not good. Everything just now depends, on continuance of a promise of a big crop of grains. If the expectation is borne out the Northwest will have a good business in automobiles the remainder of the year.

Milwaukee

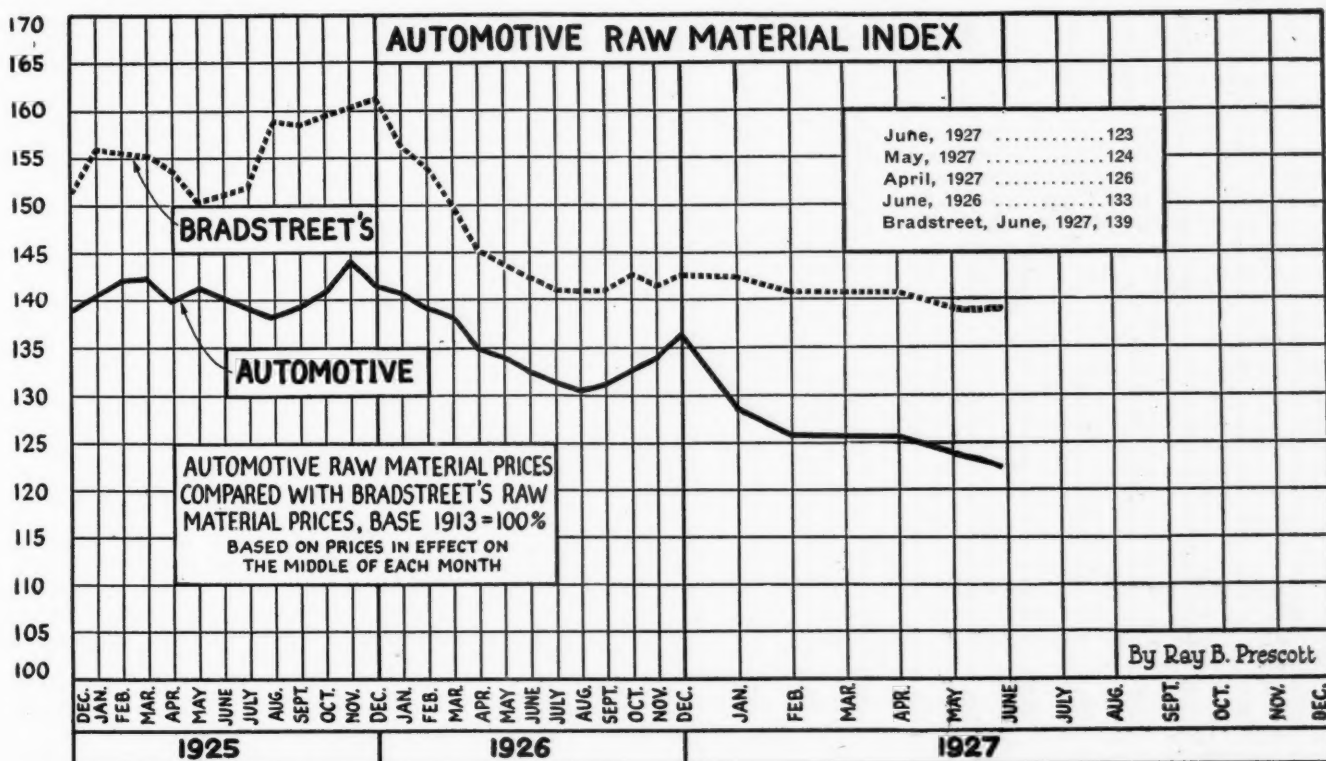
The Milwaukee and Wisconsin passenger car trade looks for a pickup in demand during July, as manufacturers who make it a practice to bring out new models at this time apprise the public of details. June sales, with a few exceptions, fell somewhat below the aggregate of the same month in 1926, an important factor being the hesitancy of many prospects to close purchases while awaiting the new models. In the first five months of 1927, total passenger car sales in Wisconsin were 37,924, compared with 49,501 in the same period of 1926. In the same period, the Ford loss was 10,208. The outlook for the last half of 1927 is generally considered brighter. Stocks of new cars in the hands of dealers at the close of June were no larger than the average. Used car stocks are very heavy. Truck sales have consistently showed substantial gains over last year and a similar condition is expected to continue for the last half.

Kansas City

Normal motor car sales in the Kansas City territory for the last half of 1927 is predicted by most of the leading motor car dealers here, the only element of uncertainty being the Kansas, Oklahoma and Nebraska wheat crop. Weather conditions have delayed the harvest until the last few days but with this condition improving, harvesting is expected to progress rapidly and the crop marketed with only a small loss. June sales here, with probably the exception of the lower priced models, show a gain over May. The Ford announcement naturally cut down Ford sales to a very low point and made inroads in other low priced cars. Unconfirmed reports that the new Ford models would sell at a big reduction in price, has had a tendency to slow down the sale of the cheaper used cars the last ten days.

The accessory and truck season has been delayed by rainy weather, which has broken all records for this territory. Dealers in both lines declare business will balance up for the season, after a few weeks of sunshine.

Raw Material Prices Still Declining



Milwaukee Engineers Develop Storage Garage in Which Automatic Elevators Replace Ramps

MILWAUKEE, July 5—Development of public garages, 10, 20 and even 25 stories high, with the resultant saving in ground area and the facility for crowded apartment house and office districts which increase the parking problems, is the project of three Milwaukee engineers who are preparing to have an experimental garage of the new type in operation shortly.

A. N. Becker, John F. Pringle and Joseph D. McCord have secured basic patents on mechanical features which make skyscraper type garages feasible. They have developed a patented method of eliminating handling cars quickly and expeditiously and without danger of carbon monoxide poisoning.

Owners drive their cars into the garage and on one of several large automatic elevators operating at 500 ft. per min. Four saddles, one for each wheel, rise from the floor of the elevator and lift the car 3 in. from the floor. At the garage floor designated by push button control at the ground level, a large truck operating in the aisle will meet the elevator. A small carriage carried on the truck slides from it on the elevator and four saddles catch the wheels of the car while the elevator's saddles sink. The carriage then rolls back on the truck carrying the automobile and the truck is rolled to a point opposite the owners' stall, the stop being fixed by automatic control. At

the stall the truck carriage rolls in with the car. From the floor of the stall rise four saddles on which the automobile rests during the storage. The carriage saddles sink and it rolls back to the truck. In getting cars out, the entire process is reversed.

In a 12-story building, the entire placing of an automobile may be accomplished in a minute or less time. One man is required on the ground floor and one on each floor. The new mechanism makes possible the storage of 40 to 50 per cent more cars than on the ordinary floor because of the precise parking and the elimination of ramps. Clearances as well are greatly reduced on all floors.

Chandler Net \$576,919

CLEVELAND, July 2—Chandler-Cleveland Motor Car Co. reports net income of \$576,919, after depreciation and Federal taxes, for the three months ended May 31, 1927. In a letter to stockholders, F. C. Chandler, president, said: "In the shipment of cars, the first six months of 1927 show an increase of 29 per cent over the same period last year. In earnings, while the company did not gain much headway until March 1, the net earnings after depreciation and Federal taxes were \$576,919 for March, April and May."

Thompson Uses Plane Between Factories

CLEVELAND, July 5—Thompson Products, Inc., has purchased an airplane which it will use in maintaining closer contact between its plants here and in Detroit and with customers in many cities. The plan is sponsored by E. G. Thompson, vice-president, who bought the first plane, a Laird biplane, which is now in regular service. Others are to be added as required.

Airplanes will be adopted generally for industrial purposes within the next few years, Mr. Thompson predicted, and he said automotive companies will lead in using planes as a more efficient means of transporting emergency shipments and of cutting down traveling time of executives and sales representatives.

"The time has arrived when the airplane deserves serious consideration as a self-supporting and practical asset of any modern manufacturing business," Mr. Thompson said.

Receiver for Speedway

CONCORD, N. H., July 2—William H. Sleeper, of Exeter, was named temporary receiver for the Rockingham Motor Speedway by Judge George F. Morris in the United States District Court here this week. The court was asked recently to appoint a receiver to conserve the property in the interests of the various creditors of the enterprise.

Gotfredson, Ltd., Bids for U. S. Properties

DETROIT, July 5—Negotiations are practically completed whereby the Gotfredson Corp., Ltd., of Canada, will absorb the Wayne Body Corp. of which the Gotfredson Truck Corp. is a subsidiary. Gotfredson stockholders and the special creditors committee, which has supervised the operation of the Wayne Body for more than a year, have approved the plan and the working out of final details are all that are necessary before the transaction becomes an actuality.

By the plan, the Canadian company will acquire all the stock of the American company and will also purchase the Wayne Body Corp. factory in Cleveland. This will mean the final step in the liquidation of the Wayne company and will lift the management from the hands of the special committee and return it to the executives of the Gotfredson company.

Sale of the Wayne main body plant at Wayne, Mich., to the three Graham brothers recently, paved the way for the reorganization of the Gotfredson interests. In addition to money realized from the sale of that factory, the Canadian corporation will in turn float a \$1,000,000 bond issue on all the plants, which will clear up more of the company's obligations besides providing new working capital.

Porto Rico Increases Tax

WASHINGTON, July 6—The excise tax on gasoline imported into Porto Rico, for use in motor vehicles, has been increased from two to four cents per gallon, and on lubricating oils and greases to one-fourth cent per pound, Trade Commissioner McKey at San Juan informs the Department of Commerce. As a safety measure all gasoline imported into Costa Rica must be colored red. The former regulation was that it should be colored blue.

Ships Now Check Cars and Stow 'em in Garage

NEW YORK, July 6—International Mercantile Marine Co. has opened an automobile department in New York to facilitate the shipping of cars abroad by tourists who wish to drive their own cars while abroad. Through this department the passenger may check his car at the pier with his other baggage and have it delivered on the other side at the same time that he gets the rest of his paraphernalia.

Cars are put aboard the ship uncrated and kept during the voyage in a garage in one of the lower holds. Foreign number plates, driving licenses and custom passes and a membership in a royal automobile club in the country where he is visiting, are supplied as part of the service rendered.

Slip-on Commercial Bodies Offered for Pontiac Cars

PONTIAC, July 6—Slip-on type of commercial bodies designed to fit the Pontiac coupe and roadster models are being marketed by Oakland Motor Car Co. for the benefit of businesses that do not have a sufficiently large volume to warrant a special delivery vehicle. These bodies are mounted on the roadster model by removing the rear deck rumble seat cover, or the rear deck cover on the coupe. Both express and panel type bodies are offered.

Inside dimensions of the open express type body are: Width 37 in., length 58 in., height of panel 10 in. Inside dimensions of the closed panel body are: Width 37 in., length 45 in., height of rear opening 24 in.

Ohmer Opens New Branch

DAYTON, July 5—Ohmer Fare Register Co. has opened a Philadelphia branch for sales and service at 1631-5 Vine St.

Bentley Car Wins French Stock Race

PARIS, June 21 (by mail)—A British Bentley of 182 cu. in. piston displacement traveled 1472.6 miles in the annual 24-hour road race for the Rudge Whitworth Cup, held on the Le Mans road circuit this week. The car was driven alternately by Dr. Benjafield and S. C. H. Davis. Second position was secured by a Salmson of 66 cu. in., with a distance of 1254.8 miles.

On a formula basis the final for the third biannual cup was won by a 66 cu. in. Salmson driven by Casse and Rousseau, its distance being 1244 miles. Second on formula was an E. H. P., and third an air-cooled S. A. R. A. The race united 22 competitors, of which only seven finished.

This race is the nearest approach to a stock car race held in France, but the attempt to stiffen the rules so as to eliminate all freak cars has tended to drive competitors away. The cars had to be as supplied to the public, but changes could be made in reciprocating parts, valve lift and timing, compression ratio, gear ratio and tire size. Some of the reasons for the reduced number of competitors are to be found in the stipulation that straight gas should be used, and that the electric generator, starting motor, headlights, and body details should remain in perfect condition throughout the race.

Transvaal to Double Tax

WASHINGTON, July 5—The doubling of taxation on automobile truck vehicles is provided for under the terms of a measure just adopted by the Transvaal Provincial Council, of South Africa, the U. S. Department of Commerce is informed. The increased revenue is to be used in road construction. Under the new tax structure the tax will fall heaviest on heavy and powerful automobiles, which are predominately American.

Calendar of Coming Events

SHOWS

ChicagoNov. 7-12
Exposition, Coliseum, Automotive
Equipment Association.
ChicagoJan. 28-Feb. 4
National, Coliseum, National Auto-
mobile Chamber of Commerce, in-
cluding special Shop Equipment
Exhibit.
ChicagoJan. 28-Feb. 4
Automobile Salon, Hotel Drake.
ClevelandSept. 19-23
Exposition, Public Auditorium, Na-
tional Machine Tool Builders' Ass'n.
ClevelandOct. 3-7
Exhibition, Public Auditorium,
American Electric Railway Ass'n.
ClevelandNov. 14-19
Convention Hall, National Standard
Parts Association.
ClevelandJan. 9-13
Public Auditorium, American Road
Builders Association.
LondonOct. 14-22
Olympia Passenger Car Show.
LondonNov. 17-26
Olympia Truck Show.

Los AngelesFeb. 11-18
Automobile Salon, Hotel Biltmore.
New Haven, Conn.Sept. 6-9
Machine Tool Exhibition.
New YorkNov. 27-Dec. 3
Automobile Salon, Hotel Commo-
dore.
New YorkJan. 7-14
National, Grand Central Palace,
National Automobile Chamber of
Commerce, including special Shop
Equipment Exhibit.
ParisOct. 6-16
Grand Palais.
San FranciscoFeb. 25-March 3
Automobile Salon, Hotel St. Francis.

CONVENTIONS

American Chemical Society, Detroit,
Sept. 6-8
American Electric Railway Association,
Public Auditorium, Cleveland, Oct. 3-7
American Road Builders' Ass'n., Hotel
Hollenden, ClevelandJan. 9-13
American Society for Steel Treating,
Convention Hall, Detroit, Sept. 19-24

Automotive Equipment Association,
Coliseum, ChicagoNov. 7-12
National Association of Automobile
Show and Association Managers,
Drake Hotel, ChicagoJuly 28-29
National Safety Council, Stevens Hotel,
ChicagoSept. 26-30
National Standard Parts Association,
Hotel Hollenden, Cleveland, Nov. 14-19
S. A. E.
National
Chicago, November—National Transporta-
tion and Service Meeting.
Chicago, Dec. 1—Tractor Meeting.
Cleveland and Detroit, Sept. 19-22—Pro-
duction Meeting.
Detroit, Jan. 24-27—Annual Meeting.
New York, Jan. 12—Annual Dinner.

RACES

Altoona, Pa.Sept. 5
Atlantic CitySept. 5
British Grand Prix, Brooklands, Oct. 1
Charlotte, N. C.Sept. 19
DetroitSept. 10
Los AngelesNov. 24
Salem, N. H.Oct. 12
Syracuse, N. Y.Sept. 3